DOCUMENT RESUME

ED 227 022 SO 014 521

TITLE	Population Education in Asia and the Pacific. Bulletin of the Unesco Regional Office for Education in Asia and the Pacific. Number 23, June, 1982.
INSTITUTION	United Nations Educational, Scientific, and Cultural Organization, Bangkok (Thailand). Regional Office for Education in Asia and the Pacific.
PUB DATE	82
NOTE	427p.; Some tables, figures, and photographs may not reproduce clearly in microfiche.
AVAILABLE FROM	UNIPUB, 1180 Avenue of the Americas, New York, NY 10036 ($27.50).
PUB TYPE	Information Analyses (070) -- Books (010)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Adult Education; Agriculture; *Comparative Education; Demography; Developing Nations; Economic Development; Educational Development; Educational Innovation; Employment; Environmental Influences; Food; Foreign Countries; Migration Patterns; Nutrition; Population Distribution; *Population Education; Population Growth; Population Trends; Quality of Life; Social Values; Urbanization
IDENTIFIERS	*Asia; *Pacific Region

ABSTRACT

The necessity of successfully managing population and development to ensure the quality of life in Asia in the coming decade is emphasized in this bulletin, which is arranged into four sections. Section one contains an article dealing with change and development of population education in Asia and the Pacific and a demographic analysis. Section two consists of country reports prepared by the directors of national population education projects and updated papers presented at workshops held in Bangkok in 1981 and in Suva in 1979. Countries reported on are Afghanistan, Bangladesh, China, India, Indonesia, Malaysia, Nepal, Pakistan, the Philippines, Korea, Viet Nam, Sri Lanka, Thailand, Turkey, Fiji, Papua New Guinea, Solomon Islands, Tonga, and the Trust Territory of the Pacific Islands. A synthesis of innovative experiences in population education concludes the second section. Section three deals with quality of life themes as related to population, including agriculture and food, nutrition and health, resources and the environment, growth and employment, migration and urbanization, socio-economic development, and sociocultural values. The publication concludes with a bibliographic supplement on population education. (RM)

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BULLETIN
of the Unesco Regional Office for Education in Asia and the Pacific

Number 23 June 1982

Population Education in Asia and the Pacific

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BANGKOK

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Published by the
Unesco Regional Office for Education in Asia and the Pacific
P.O. Box 1425
General Post Office
Bangkok 10500, Thailand

Printed in Thailand

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BKR/82/M/68-3200

PREFACE

This Bulletin is in four sections. Section One contains an article dealing with change and development of population education in Asia and the Pacific and a demographic analysis.

In Section Two there are country reports prepared by the directors of national population education projects; updated country papers which were presented at a regional workshop in Bangkok in 1981; and articles by Pacific countries adapted from seminar-workshop held in Suva in 1979 and updated. Then follows a synthesis of the innovative experiences in population education. Highlights of the country articles are listed below. In order to present a fuller picture of population education in the Pacific area, country reports include those available for countries in the Pacific which are not yet members of Unesco. (identified * in the following list).

Afghanistan : first population census, six programmes in population education integrated with literacy, goals, development of expertise;

Bangladesh : national goals with respect to population, curriculum and materials development, training, evaluation and research, mobile library, accomplishments, problems;

China : population policies, population education in secondary schools, materials development, pilot projects and teacher training;

India : demographic situation and targets, strategies, curriculum development, training, audio-visual kit, research and evaluation;

Indonesia : demographic analysis, role of population education, planning and implementation, teacher training, audio-visual materials, out-of-school population education;

Malaysia : small population, goals and objectives, strategies, training, innovative experiences, coordinating in-school and out-of-school population education;

Nepal : need for planned population growth, policy, training key personnel, curriculum development, teacher education, adult education;

Pakistan : population characteristics, population education past and present, curriculum and materials development, training, research, objectives, implementation;

Philippines : population situation, school programme, teacher training, research and evaluation, out-of-school population education, problem and strategies;

Republic of Korea : population situation, formal and non-formal population education, national project, programme impact;

Socialist Republic of Viet Nam : policy to rapidly lower growth rate, population distribution, the role of women, gathering and using data, materials, training;

Sri Lanka : historical background and population situation, in-school programmes, teacher training, linkage with other programmes, innovative experiences;

Thailand : population policy, objectives and programmes, materials development, training, research and evaluation, role of concerned organizations;

Turkey : demographic data, population policy of direct intervention combined with economic and social development, formal and non-formal programmes;

*Fiji : expanded demographic details, nutrition education and the Ministry of Health, introducing population education into the curriculum, Fiji population project;

Papua New Guinea : population situation, status of population education, population awareness campaign, population education in the curriculum;

*Solomon Islands : detailed demography, out-of-school population education, Solomon Islands population education project;

Tonga : historical background, demographic data, population education status, problems and issues;

* Trust Territory of the Pacific Islands : geographical and demographic data on Palau, Federated States of Micronesia and the Marshall Islands, objectives and project activities in population education.

Section Three deals with quality of life themes as related to population.

The Bibliographical Supplement makes up Section Four and consists of basic reference materials developed and published since 1974. Each entry provides complete bibliographical information and the addresses of sources.

"Population education in Asia and the Pacific", *Bulletin of the Unesco Regional Office for Education in Asia and the Pacific* (23):1- June 1982.

Bibliography:I-LXVIII

1. POPULATION EDUCATION - ASIA. 2. POPULATION EDUCATION - PACIFIC ISLANDS. I. Unesco Regional Office for Education in Asia and the Pacific, Bangkok.

P370 or 301.3207

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ACKNOWLEDGEMENTS

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SECTION ONE

ASPECTS OF POPULATION EDUCATION IN ASIA AND THE PACIFIC

UNICEF photo by T.S. Satyan

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

SECTION ONE

POPULATION CHANGE AND EDUCATIONAL DEVELOPMENT

by J. E. Jayasuriya

Introduction

Education is fundamentally concerned with the enhancement of quality of life in the sense that, in whatever way quality of life is defined, education is a potential input into its attainment at the level both of the individual and of society at large. Admittedly, quality of life is a relative concept signifying different things to different people, but there is no denying the fact that while divergences exist, a substantial measure of consensus also exists about some of the major elements that go to constitute quality of life. Among various attempts to conceptualize quality of life, the following formulation commends itself for the reasons indicated below: ' . . . quality of life is a very complex concept as it involves the satisfaction of the emotional needs and social aspirations of the community or society as well as the society's ability to meet the basic needs of food, energy, space, housing, etc., by itself.' [1]

Two emphases in the statement give it a quality that is somewhat different from the generality of statements that are made about quality of life. One is the primacy given to emotional satisfaction, which goes beyond the satisfaction of the needs for such things as food and shelter, to encompass the less tangible aspects of life such as psychological, aesthetic and spiritual needs. The second is the concluding phrase, 'by itself', which implies the vision of a society that is stable and can live in harmony with nature without endangering itself or the environment for an indefinite period of time. In the words of the author:

> There may be four principal conditions of a stable society—one that to all intents and purposes can be sustained indefinitely, while giving optimum satisfaction to its members. These are: (1) Minimum disruption of ecological processes; (2) Maximum conservation of material and energy or an economy of stock rather than flow; (3) A population in which recruitment equals loss; and (4) A social system in which individuals can enjoy, rather than be restricted by the first three conditions.[2]

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[1] Sharma, R.C. *Population trends, resources and environment; handbook on population education.* New Delhi, 1975. p. 108.

[2] ———. *op. cit.* p. 111.

The criteria which may be used to compare quality of life in various societies are grouped by the author into two major categories:

1. The quantity and quality of the basic physical needs of man such as food, fresh air, fresh water, housing and clothing; and
2. The quantity and quality of the social and cultural needs of man such as educational and employment opportunities, medical and health facilities, conditions of work, security, transportation, human freedom, recreation and entertainment, opportunities for creative development and so on.

Not all of these are quantifiable but, of course, the value of those which are not quantifiable is none the less important.

The instrumental role of education in regard to the attainment of quality of life may be illustrated by two examples. Consider food and nutrition. The availability of food is a function partly of the bounty of nature, partly of the technology of food production which requires an essential input in the form of basic research and applied research to make the most of nature, and partly of nutritional knowledge and practice which again have an educational component–cognitive, affective, and psychomotor. Nutritional knowledge and practice are related to the kinds of food that are needed to constitute a balanced diet and how they should be prepared to retain their nutritive value to the maximum extent while being satisfying to the palate. Health is another factor important to the quality of life. The state-of-health knowledge accumulated over the years is the result of the endeavours of education and research. The transmission of that knowledge to medical personnel is also a matter of education, and the acquisition and utilization of health knowledge by the ordinary individual pre-supposes information gained through the education process. In short, whatever facet of quality of life is considered, a critical role may be discerned for education in promoting its attainment. This may be the desired norm rather than the present reality, but this consideration does not detract in any way from the potential importance of education.

Concern for improvement of the quality of life implies a concern for education. But the concern for education may also be justified on other grounds. For example, it may be pointed out that education is a basic human right enshrined in the following terms in the Universal Declaration of Human Rights:

> Article 26.(1) Everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages. Elementary education shall be compulsory. Technical and professional education shall be made generally available and higher education shall be equally accessible to all on the basis of merit.[3]

---

[3] Francois, Louis. *The right to education.* Paris, 1968. p. 17.

Educational goals and their achievement

In 1960, at the beginning of the first development decade, the developing countries took stock of their educational situation and planned to achieve a number of educational goals within the next two decades. Three of the most important of these goals were:

1. The achievement of universal primary education;
2. The eradication of illiteracy; and
3. The provision of secondary and tertiary education to meet manpower needs.

Most developing countries set themselves the target of achieving free universal primary education of seven years duration by 1980, and while targets of the same specificity were not set for the other two goals, it was hoped that illiteracy would be wiped out quickly and that substantial headway would be made with the expansion and diversification of secondary and tertiary education. It is of interest to look at the extent to which these goals have been achieved by the developing countries of Asia, and also to assess the prospects for the future. In assessing prospects for the future, it is necessary to emphasize that they are predicated on a continuation of present trends. Any dramatic change in them may, of course, greatly change the assessments of future possibilities.

The achievement of universal primary education. As school systems differ in the number of years devoted to primary education, school enrolment will be examined by using the age-group 6-11 years as a reasonable proxy for what obtains in the majority of countries.

Table 1. Matrix showing enrolment ratios 6-11 age-groups, 1960 and 1980 (in percentages)

Enrolment ratio in 1980					
	75–100		Iran	Philippines	Rep. of Korea Malaysia Singapore Thailand
	50–75		Burma Mongolia	Democratic Kampuchea India Indonesia	Sri Lanka
	25–50	Nepal	Bangladesh Pakistan		
	5–25	Afghanistan			
		5–25	25–50	50–75	75–100

Enrolment ratio in 1960

Source: Unesco. *Development of education in Asia and Oceania: statistical trends and projections 1965–1985.* Paris, 1978. Extracted from Table 3.

In Table 1 the enrolment ratios have been divided into four categories 5 to 25 per cent, 25 to 50 per cent, 50 to 75 per cent and 75 to 100 per cent. Nepal, Burma, Mongolia and the Philippines increased their enrolment ratios over the period 1960–1980 and moved one category up, while Iran moved two categories up. Afghanistan, Bangladesh, Democratic Kampuchea, India, Indonesia and Pakistan remained in the same categories in 1980 as in 1960. Sri Lanka moved one category down, but this is because the age of admission to school was raised. The Republic of Korea, Malaysia, Singapore and Thailand were in the most advanced category in 1960, and have remained there. The top row shows the countries with the highest enrolment ratios in 1980. They were: Republic of Korea, 100.0; Singapore, 100.0; Malaysia, 94.0; Philippines, 80.6; Thailand, 77.8; Iran, 75.5.

The countries which have achieved universal primary education in the sense of having attained 100 per cent enrolment of the age-group 6–11 years are the Republic of Korea and Singapore. Malaysia will probably achieve universal primary education before the year 2000, the Philippines, Thailand and Iran perhaps within the first two decades of the twenty-first

Table 2. Estimates and projections of illiteracy for the population aged 15 years and over (in millions)

Country	Year					
	1970		1980		1990	
	No. of Illiterates (millions)	Illiteracy rate (per cent)	No. of Illiterates (millions)	Illiteracy rate (per cent)	No. of Illiterates (millions)	Illiteracy rate (per cent)
Afghanistan	8.9	92.2	10.7	88.7	13.4	83.4
Bangladesh	25.8	71.2	26.9	58.6	28.6	46.5
Burma	6.3	38.0	6.3	30.3	6.3	23.4
Hong Kong	0.6	23.4	0.5	15.2	0.4	10.8
India	208.1	66.6	243.1	59.7	286.8	54.0
Indonesia	30.3	45.3	29.2	33.1	26.8	22.8
Iran	10.8	70.4	11.1	53.4	10.4	36.0
Kampuchea	2.0	51.8	n.a.	n.a.	n.a.	n.a.
Lao People's Democratic Republic	1.3	76.3	1.3	59.0	1.2	42.6
Malaysia	2.5	44.5	2.2	27.9	1.9	17.1
Nepal	5.7	88.0	6.8	82.7	7.8	73.4
Pakistan	24.9	76.7	29.8	67.5	33.8	55.0
Philippines	3.6	17.4	3.2	11.3	2.9	7.2
Republic of Korea	2.2	12.4	1.8	7.3	1.5	4.8
Singapore	0.4	31.0	0.4	22.5	0.4	17.7
Sri Lanka	1.6	22.6	n.a.	n.a.	n.a.	n.a.
Thailand	4.1	21.4	3.8	1.0	3.4	
	339.10		377.10		425.60	

Source: Adapted from Unesco. *Estimates and projections of illiteracy.* Paris, 1978. Table 3.

century. The situation with regard to the other countries is less satisfactory, and they will have gone well into the twenty-first century before achieving universal primary education. On the whole, the prospect is not one that invites complacency.

The eradication of illiteracy. Table 2 gives the estimated and projected number of illiterates, and the percentage rates of illiteracy for the developing countries of Asia for the years 1970, 1980 and 1990.

Any sense of complacency prompted by the declines in the percentage rates of illiteracy indicated for all the countries should be tempered by two considerations: first, even by 1990 Afghanistan, India, Nepal and Pakistan will have illiteracy rates of more than 50 per cent; second, as a result of increases in the absolute number of illiterates over the period 1970 to 1990 in Afghanistan, Bangladesh, India, Nepal, and Pakistan the number of illiterates in the developing countries of Asia will increase from 339.1 million in 1970 to 425.6 million in 1990, which is in fact an increase of about 25 per cent.

It is a sombre thought that the problem of illiteracy will remain with Asia well into the twenty-first century.

Enrolment of the age group 12-17 years. Postulating an arbitrary enrolment ratio of 80 per cent as the target, based on the figures for Australia,

Table 3. Matrix showing the enrolment ratios 12-17 age-group 1960 and 1980 (in percentages)

Enrolment ratio in 1980	60-80	Iran	Republic of Korea Mongolia Philippines	Singapore	
	40-60		Malaysia		
	20-40	Bangladesh Burma Indonesia	India Thailand		
	0-20	Afghanistan Nepal Pakistan			
		0-20	20-40	40-60	60-80
		Enrolment ratio in 1960			

Source: Unesco. *Development of education in Asia and Oceania: statistical trends and projections 1965-1985.* Paris, 1978. Extracted from Table 3.

New Zealand and Japan of 82.0 per cent, 84.5 per cent, and 94.5 per cent respectively by 1980, the following matrix is obtained for the years 1960 and 1980, the four categories into which enrolment ratios are divided being 0 to 20 per cent, 20 to 40 per cent, 40 to 60 per cent, and 60 to 80 per cent or more.

Iran has recorded a phenomenal increase over the period 1960 to 1980, moving up three categories, while Mongolia, the Republic of Korea, and the Philippines have also shown quite considerable progress, moving up two categories. Bangladesh, Burma, Indonesia, Malaysia, and Singapore have moved one category up. Afghanistan, Nepal, Pakistan, India and Thailand have remained in the same categories in 1980 as in 1960. The enrolment of the countries in the top row are as follows: Mongolia, 81.2; Singapore, 74.6; Republic of Korea, 74.4; Iran, 63.7; Philippines, 60.4.

Mongolia has already attained the target of 80 per cent. Singapore, the Republic of Korea, Iran, and the Philippines are likely to reach it or even exceed it by the year 2000, followed closely by Malaysia. It is only in the early decades of the twenty-first century that the remaining developing countries of Asia will reach the target of an enrolment of 80 per cent for the age-group 12 to 17.

Enrolment of age group 18-23 years. Postulating an arbitrary enrolment ratio of 20.0 per cent as the target, based on the figures for Australia, the Philippines, New Zealand, and Japan of 23.0 per cent, 24.0 per cent, 27.2 per cent and 29.3 per cent by 1980, the following matrix is obtained for the years 1960 and 1980, the four categories into which enrolment ratios are divided being 0 to 5 per cent, 5 to 10 per cent, 10 to 15 per cent, and 15 to 20 per cent or more.

Table 4. Matrix showing the enrolment ratios 18-23 age-group, 1960 and 1980 (in percentages)

Enrolment ratio in 1980	15-20			Philippines	
	10-15	Iran	Rep. of Korea Mongolia		
	5-10	India Indonesia	Thailand		
	0-5	Afghanistan Bangladesh Burma Malaysia Nepal Pakistan			
		0-5	5-10	10-15	15-20

Enrolment ratio in 1960

Source: Unesco. *Development of education in Asia and Oceania: statistical trends and projections 1965-1985.* Paris, 1978. Extracted from Table 3.

There was no change of category in the case of Afghanistan, Bangladesh, Burma, Malaysia, Nepal, Pakistan and Thailand. India, Indonesia, the Republic of Korea, and Mongolia improved their enrolment ratios by one category. Iran improved by two categories. The Philippines also improved by virtually two categories, thereby exceeding the target mentioned above. Iran, the Republic of Korea, and Mongolia will probably reach the target by the end of this century or early during the next. India, Indonesia and Thailand will be longer reaching their goal, while Afghanistan, Bangladesh, Burma, Malaysia, Nepal and Pakistan will take even longer.

Disadvantaged population groups

The indicators of educational status considered above relate to national trends, but the picture they give is far from complete, as important group differentials are masked in the process. Educational provision is seldom spread out evenly throughout a country, and this is more so in the case of a less-developed country than a more-developed one. Inadequacy of financial inputs, in conjunction with forces of a social nature, bring about a state of affairs in which educational provision is distributed differentially to the greater advantage of the traditionally more privileged groups in education. Social groups that are traditionally more disadvantaged gain least from increased inputs by the government into education, especially when such inputs are less than adequate in the face of rapid population growth. Educational progress in a country can hardly be regarded as adequate and a matter for satisfaction if certain population groups are far behind the others. Some disadvantaged population groups, such as ethnic, caste, minority religious, or tribal groups are characteristic of certain countries only, and it is not proposed to consider their educational status here. There are two disadvantaged population groups that are characteristic of all developing countries—the females and the rural population—and it is of interest to note their educational status *vis-a-vis* males and the urban population, especially because their educational disadvantage influences population dynamics to a certain extent, as will be noted later in this chapter.

The percentage of females of various age groups enrolled in educational institutions gives an indication as to whether females are disadvantaged or not. The nearer the percentage approaches 50 the less the female is disadvantaged.

In Mongolia, females of the age-groups 12–17 and 18–23 are more advantaged than males; in Sri Lanka, females of the age-group 12–17 are more advantaged than males, while in the Philippines, females of the age-group 18–23 are more advantaged than males. Generally speaking, however in the developing countries of Asia as a whole, females are disadvantaged *vis-a-vis* the males in respect of the enrolment ratios for all three age-groups 6-11, 12-17 and 18-23.

Table 5. Percentage of females in enrolment by age-groups, 1980

Country	6-11	12-17	18-23
	% F	% F	% F
Afghanistan	15	11	14
Bangladesh	34	23	10
Burma	48	44	43
India	39	32	29
Indonesia	46	36	29
Iran	40	37	31
Lao People's Democratic Republic (1973)	38	26	25
Malaysia	48	45	34
Mongolia	48	52	53
Nepal	23	20	25
Pakistan	33	26	26
Philippines	49	50	55
Republic of Korea	49	42	29
Singapore	47	48	43
Sri Lanka (1976)	49	51	37
Thailand	48	42	44

Source: Unesco. *Development of education in Asia and Oceania: Statistical trends and projections 1965-1985.* Paris, 1978. Table 6.

Table 6 shows that the relative disadvantage of women is greater in countries with a high rate of literacy than in those with a low rate. If women are not disadvantaged *vis-a-vis* men, the percentage should be 50.

Table 6. Percentage of women in the illiterate population 15 and over, 1970

Country	Percentage
Afghanistan	53.1
Philippines	54.9
Nepal	56.9
Lao People's Democratic Republic	58.3
India	58.6
Pakistan	59.4
Bangladesh	61.1
Iran	61.1
Malaysia	64.6
Indonesia	66.0
Thailand	70.7
Burma	71.2
Singapore	72.0
Republic of Korea	77.8
Hong Kong	78.5

Source: Unesco. Office of Statistics. *Comparative analysis of male and female enrolment and illiteracy.* Paris, 1970. Table 8.

Information is not at hand for ascertaining urban-rural differences in regard to school enrolment by age-groups. In respect of the incidence of illiteracy, however, it is possible to present data.

Table 7. Percentage of illiteracy by rural-urban residence

Country	Year	Age-group	Rural (R) %	Urban (U) %	Rural/ Urban
Afghanistan	1975	6 +	90.5	73.2	17.3
Bangladesh	1974	15 +	76.5	51.9	24.6
Democratic Kampuchea	1962	15 +	66.1	42.2	23.9
India	1971	15 +	73.6	40.1	33.5
Indonesia	1971	15 +	47.8	23.3	24.5
Iran	1971	6 +	79.6	41.4	38.1
Malaysia, Pen.	1970	15 +	45.6	35.2	10.4
Pakistan	1972	15 +	86.3	59.3	27.0
Philippines	1970	10 +	21.3	7.2	14.1
Republic of Korea	1970	15 +	17.8	5.7	12.1
Sri Lanka	1971	15 +	25.0	14.1	10.9
Thailand	1970	15 +	22.9	12.3	9.6

Source: Unesco. *Statistical yearbook, 1980* Paris, 1981. Table 1.3

The disadvantage of rural residence is compounded by being female, and the following table showing the rates of illiteracy for urban males and rural females brings out clearly the double disadvantage of being female and living in rural areas.

Table 8. Percentage of illiteracy: rural females and urban males

Country	Year	Age group	Rural females (RF) %	Urban males (UM) %	RF–UM
Afghanistan	1975	6 +	98.4	63.8	34.6
Bangladesh	1974	15 +	88.5	42.1	46.4
Democratic Kampuchea	1962	15 +	91.5	17.4	74.1
India	1971	15 +	87.5	27.9	59.6
Indonesia	1971	15 +	59.9	12.4	47.5
Iran	1971	6 +	91.7	31.3	60.4
Malaysia, Pen.	1970	15 +	59.6	19.8	39.8
Pakistan	1972	15 +	95.8	49.9	45.9
Philippines	1970	10 +	22.8	6.0	16.8
Republic of Korea	1970	15 +	26.6	2.0	24.6
Sri Lanka	1971	15 +	34.9	9.4	25.5
Thailand	1970	15 +	31.6	6.3	25.3

Source: Unesco. *Statistical yearbook, 1980.* Paris, 1981. Table 1.3

This table shows in quite unmistakable terms the disadvantaged position of the rural female *vis-a-vis* her urban male counterpart. Under demographic pressure, however, the elimination of this kind of imbalance becomes a necessarily slow process. The less intense the demographic pressure, the greater are the chances that restitutional measures will eliminate or reduce population group differentials within a short period of time. It is necessary to caution against regarding urban males themselves as a homogeneous group. There would be the disadvantaged amongst them, too, such as the urban poor, among whom there would be a certain percentage of rural-urban migrants.

Reasons for shortfalls in the achievement of educational goals

1. Rapid population growth is an impediment

One very important reason for the shortfalls in the achievement of educational goals is the large increase in the school-age groups in the developing countries of Asia. Confining our attention to Indonesia and Japan, we may examine this problem with reference to the 6–11 year age-group. There are two reasons for the choice of these two countries. The first is that their populations were similar in 1960. The second is that over the period 1960 to 1980, they recorded quite contrasting rates of population growth, approximating a high average annual rate of 2.5 per cent in the case of Indonesia, and in the case of Japan a low average annual rate of 1.1 per cent.

Table 9. Total population and population aged 6–11, Indonesia and Japan

Country	Year	Total population (in thousands)	Population 6–11 (in thousands)
Indonesia	1960	92,701	13,455
	1980	154,868	25,176
Japan	1960	94,095	12,400
	1980	117,546	11,269

Source: Unesco. *Development of education in Asia and Oceania: statistical trends and projections 1965–1985.* Paris, 1978. Table 3.

The following points may be noted about the changes over the period 1960 to 1980:

1. The total population of Japan exceeded that of Indonesia by 1.394 million in 1960, but in 1980 the population of Indonesia exceeded that of Japan by 37.322 million;

2. The total population of Indonesia increased by 89.3 per cent, whereas the population of Japan increased by only 23.9 per cent;
3. In 1960, the Indonesian population aged 6 to 11 years was more than the Japanese population aged 6 to 11 years by 1.050 million whereas in 1980 the Indonesian population aged 6 to 11 years exceeded the same age group in Japan by 13.465 million;
4. The Indonesian population aged 6 to 11 years increased by 87.1 per cent, whereas the Japanese population aged 6 to 11 years declined by 5.6 per cent; and
5. Indonesia had 14.781 million *more* 6 to 11 year olds in 1980 than in 1960, while Japan had 1.131 million *fewer.*

This clearly shows that educational planners in Indonesia are facing an uphill task. Using the additional data given below, the enormity of the task that awaits educational planners in Indonesia in 1985, as contrasted with the conditions that obtained in 1960, may be seen in quite dramatic form:

1. The net enrolment ratio for 6 to 11 year olds was 50.1 per cent for Indonesia in 1960, and 100.0 per cent for Japan;
2. The Indonesian population aged 6 to 11 years is estimated to reach 28.236 million in 1985, while the Japanese population of the same age group will be 12.269 million.

In order to maintain Indonesia's 50.1 per cent enrolment ratio in 1985, the figures in that year must reach 14.146 million, which is 7.405 million more than the enrolment in 1960. To increase the enrolment ratio to 100 per cent in 1985 will mean an enrolment of 28.236 million or in other words 21.495 million more than in 1960. Japan, on the other hand, will maintain a 100 per cent enrolment in 1985 with an excess of 131.000 above the enrolment in 1960. This example illustrates how rapid population growth makes the attainment of cherished educational goals an almost impossible undertaking.

Another approach to an appreciation of the influence of the population variable is to consider the 'dependency burden', and this too may be explored with reference to Indonesia and Japan. The burden that is imposed by the child population 0-14 years on the working age population 15-64 years is given by the 'youth dependency ratio', defined as:

$$\frac{\text{the percentage of the population 0–14 years}}{\text{the percentage of the population 15–64 years}} \times 100$$

For the year 1980, the youth dependency ratios for Japan and Indonesia were 36 and 79 respectively. The implication of these values may be stated in the following terms. In Japan, 100 persons of working age support 36 persons below working age; in Indonesia, 100 persons of working age support 79 persons below working age – more than twice the number. Quite naturally, a large dependency burden reduces a country's capacity to provide basic services, such as health and education for young people. Added to this, in Indonesia to a greater extent than in Japan, not all of the working age population is economically active. In particular, the participation of women in economic activity is much less in Indonesia than in Japan. This has the effect of making the actual burden of dependency greater than the theoretical rate calculated from the formula. The real crux of the problem of rapid population growth in relation to education is that while rapid population growth releases a very large number of children into the school-age group, as in the case of Indonesia, the high dependency burden resulting from rapid population growth at the same time reduces the capacity to meet their educational needs.

Indonesia's position in respect of both the increase in the number of children of school-going age and the large dependency burden is typical of nearly all developing countries, while that of Japan is typical of developed countries. Table 10 shows the magnitude of the problem that the Asian countries have been contending with in the past and which faces them in the future, in their attempts to achieve universal enrolment of the age-group 6-11 years. For comparative purposes, three developed countries, namely, Australia, Japan and New Zealand have also been included in the table. It may be noted that the countries are arranged in increasing order of their net enrolment ratios, ages 6-11, in 1960.

The Table shows that a marked contrast exists between the developed and the developing countries. As of 1980, Singapore may be regarded as belonging to the category of developed countries, marked by universal enrolment of the age-group 6-11 years, a low rate of population growth over the past two decades, and a low youth dependency ratio. The developing countries show quite opposite characteristics.

Fertility behaviour is not unalterably ordained by physiological processes, and medical technology has placed in the hands of human beings methods of moderating it to approach a desired level. Governments are hard put to provide educational facilities for the numbers knocking at the doors of educational institutions, as well as those who normally never enter into the system. They should be sensitive to the advantages that a low level of fertility would confer on the attainment of educational goals. In this connection, it is of interest to take one country as an example, and examine the implications for the future of alternative patterns of demographic behaviour.

Table 10. Net enrolment ratios, percentage increase of population and youth dependency ratios for some developed and developing countries in Asia and the Pacific

Country	Net enrolment ratio 6-11 1960	Net enrolment ratio 6-11 1980	Percentage increase of population 6-11 years over 1960 to 1980	Youth dependency ratio 1978
Afghanistan	5.4	18.5	74.2	88.1
Nepal	10.0	39.9	81.8	80.0
Pakistan	27.2	47.0	93.5	92.7
Bangladesh	29.9	54.5	69.0	89.7
Iran	31.9	75.5	115.4	89.4
Burma	44.3	59.5	73.8	74.1
Mongolia	47.9	71.7	117.0	81.3
India	50.1	63.8	71.6	71.9
Indonesia	50.4	67.0	87.1	79.0
Philippines	71.7	80.6	100.5	78.0
Thailand	75.7	77.8	95.6	77.6
Republic of Korea	84.6	100.0	32.8	68.3
Singapore	84.9	100.0	10.2	44.9
Malaysia	86.0	94.0	69.7	73.2
New Zealand	98.2	100.0	25.8	45.7
Australia	100.0	99.6	36.6	40.3
Japan	100.0	100.0	-05.6	35.8

Source: For columns 1 and 2:

Unesco. *Development of education in Asia and Oceania: statistical trends and projections 1965-1985.* Paris, 1978. Table 5.

For column 3:

Data calculated from Unesco. *op. cit.*, Table 3.

For column 4:

ESCAP. *Demographic trends and policies in ESCAP countries, 1978.* Bangkok, 1979. pp. 4-75.

In 1975, the Population Institute of the University of the Philippines made three sets of population projections up to A.D. 2000. Only the high projections and the low projections will be considered here as they highlight the contrasts.

Assumptions for the high projection

Fertility: It was assumed that the schedule of age-specific fertility rates observed for 1968-1972 in a cohort of women interviewed in 1973, resulting in a total fertility rate of 5.89, would remain constant throughout the projection period;

Mortality: The death rate was assumed to decline by 4.8 points;

Migration: It was assumed that net international migration would remain negligible.

Assumptions for the low projection

Fertility: It was assumed that the total fertility rate would decline from 5.89 in 1970 to 4.96 by the middle of the period 1970–1975, and to 2.21 by the end of the century;

Mortality: The death rate was assumed to decline by 3.8 points;

Migration: It was assumed that net international migration would remain negligible.

Implications of the two projections

Differences in population size according to the two projections begin with the 5 to 9 year group in 1980, extending to the 10 to 14 year group in 1985, the 15 to 19 year group in 1990, and the 20 to 24 year group in

Table 11. Philippines: Projected total population by five-year age-groups for the age-range 5–24, 1970–2000.
High and low projections and the differences (high–low)

		5–9 (thousands)	10–14 (thousands)	15–19 (thousands)	20–24 (thousands)
1980	High	7,096	6,014	5,428	4,905
	Low	6,011	6,014	5,428	4,905
	Difference:	1,085	–	–	–
1985	High	8,697	7,043	6,032	5,362
	Low	6,282	5,965	6,032	5,362
	Difference:	2,415	1,078	–	–
1990	High	10,489	8,643	6,993	5,896
	Low	6,485	6,243	5,923	5,896
	Difference:	4,004	2,400	1,070	–
1995	High	12,359	10,434	8,591	6,931
	Low	6,493	6,451	6,206	5,861
	Difference:	5,866	3,983	2,385	1,070
2000	High	14,403	12,310	10,383	8,530
	Low	6,258	6,467	6,420	6,162
	Difference:	8,145	5,843	3,963	2,368

Source: Calculated from ESCAP. *Population of the Philippines.* Bangkok, 1975. Tables 144, 145.

1995. Taking the 5 to 14 year group as a whole, the advantage of the low projection for education is that there is a reduction in numbers amounting to 1.1 million in 1980, and to 14 million by the year 2000. In the case of the 15 to 24 year age-group, the advantage starts late, being a reduction of 1.1 million in 1990, and amounting to 6.3 million by the year 2000. Assuming a continuation of the trends, increasing advantages will follow later on. Assuming a 100 per cent enrolment of the 5 to 14 year age-group, an educational planner will need 14 million fewer school places on the low projection than in the high projection in the year 2000. Assuming an 80 per cent enrolment of the 15 to 24 year age-group, 5 million fewer school places will be needed on the low projection than on the high projection.

Just as importantly, the advantage of reduced numbers needing educational provision is enhanced by the greater capacity to meet their needs as evidenced by a rapidly decreasing burden of youth dependency on the low projection. The following table demonstrates this:

Table 12. Youth dependency ratios according to high and low projections, 1965–2000

Period	High	Low
1965-1970	88.83	88.83
1970-1975	82.78	77.90
1975-1980	81.92	68.70
1980-1985	84.40	60.23
1985-1990	86.59	54.41
1990-1995	86.31	48.39
1995-2000	85.04	42.21

Source: ESCAP. *Population of the Philippines.* Bangkok, 1978. Table 149.

Tables 11 and 12 together indicate that on the low projection not only would there be 14 million *fewer* 5 to 14 year olds to provide for in the year 2000, but also that the burden on the working age population would be *half* that of the high projection. In other words the working age population would have twice the capacity to provide for the educational needs of the 5 to 14 year old population on the low projection. The dual advantage of reduced numbers for whom educational provision is needed and a doubling of the capacity to provide for them cannot be over-emphasized.

Although the projections given in Table 11 end with the year 2000, it is possible to look still further into the future. A breakdown by sex of the population aged 20 to 29 years projected for the year 2000 shows that in that year there would be, on the high projection, 7,608,930 females, whereas on the low projection the number would be 5,920,087.[4] In other words, there would be 1.7 million more females in the peak reproductive age-group 20 to 29 years on the high projection than on the low projection. Even on a greatly reduced fertility rate, the high projection as contrasted with the low projection means more births in the twenty-first century with correspondingly high requirements in the course of time for educational facilities. Thus, population growth has an in-built momentum, and the earlier a reduction in the fertility rate is achieved the greater will be the advantages, both long-term and short-term, from the point of view of human resource development.

2. Social determinants of educational expansion

The demographic obstacle to the attainment of educational goals has been sufficiently documented in the foregoing account and further elaboration is not needed. To put the record straight, it is necessary to point out how social forces compound the effects of population growth. This issue is pertinent in relation to the second and third levels of education, as it is assumed that the provision of universal primary education is a principle that is accepted beyond challenge. From the standpoint of target setting, we are on less sure ground in relation to the second and third levels of education. Apart from a faith in the value of education *per se*, the major justification for the provision of second and third level education is for meeting manpower needs. The existence of a large number of unemployed persons with second and third level education in nearly all the developing countries of Asia may be regarded as a signal that the expansion of such education has gone beyond the capacity of the economy to absorb them in productive employment. Universal primary education naturally generates a demand for the provision of second and third level education, but it is necessary to keep such expansion within limits. What is most difficult to justify is the investment in second and third level education beyond manpower needs, while condoning a state of affairs in which first level education is less than universal. The following table shows the percentage increase in enrolment for each level of education for each country over the period 1965 to 1975. The countries are arranged in categories according to their gross enrolment ratios at the first level in 1965.

In the case of countries with low first-level gross enrolment ratios, the question that arises is whether the expansion of first-level education has not been impeded by an over-expansion of second and third level

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[4] ESCAP. *Population of the Philippines.* Bangkok, 1978. p. 204.

Table 13. Percentage increase in enrolment by levels of education, 1965-1975

	First level	Second level	Third level
A. Countries with first-level gross enrolment ratios less than 25 per cent in 1965:			
Afghanistan	106	304	251
Nepal	85	93	189
B. Countries with first-level gross enrolment ratios of 25 per cent to 50 per cent in 1965:			
Bangladesh	91	155	386
Pakistan	68	93	71
C. Countries with first-level gross enrolment ratios of 50 per cent to 75 per cent in 1965:			
Burma	53	118	115
India	32	43	66
Indonesia	56	131	99
Iran	212	279	411
Mongolia	64	137	24
D. Countries with first-level gross enrolment ratios of 75 per cent and above in 1965:			
Republic of Korea	13	164	110
Malaysia	30	135	193
Philippines	31	91	64
Singapore	–08	58	45
Sri Lanka	–16	33	04
Thailand	44	178	115

Source: Calculated from Unesco. *Development of education in Asia and Oceania: statistical trends and projections 1965-1985.* Paris, 1978. Table 6.

education. In other words, if resources spent on second and third level education had been partly diverted to first-level education, they would be nearer the achievement of a high enrolment in first-level education. This issue assumes great salience if second and third level graduates are not absorbed in productive employment. In these cases it is not the demographic factor *alone* that has impeded the achievement of universal primary education.

An explanation for the expansion of second- and third-level education in the face of both an inadequate enrolment in first-level education and rising unemployment among second- and third-level graduates is found in the demand for secondary and tertiary education from a public, usually belonging to the relatively better-off economic classes, that is aware of the wage-earning potential of such an education. In fact, the competition for scarce jobs leads to an escalation of the demand for educational qualifications at increasingly higher levels. Educational qualifications previously considered adequate to obtain certain kinds of employment are not regarded as sufficient any more. In other words, what takes place is a devaluation of educational qualifications *vis-a-vis* employment, resulting in a determined effort to obtain higher qualifications in the hope that they will give a comparative advantage in the employment market. The stresses on the educational system are thereby increased, as the new demands can scarcely be met in any substantial measure. To the small extent that they are met, very high costs are involved as the qualifications sought are at the secondary and/or tertiary levels with their high unit costs, thereby diminishing the financial resources for primary education. Rapid population growth has a compounding effect on this phenomenon.

The curtailment of secondary and tertiary education or a reduction to some extent of their unit costs is a priority that should engage the attention of educational planners. This point may be illustrated with reference to Thailand. The unit costs of first, second and third level education were US $36.5, US $100, and US $675 respectively in 1978.[5] The student enrolments were 6,876,047 at the first-level, 1,343,061 at the second-level, and 1,337,238 at the third-level.[6] The first-level enrolment constituted 83.7 per cent of the relevant age-group. It can be shown that a reduction of 50 per cent in the unit costs of third-level education would have resulted in a saving which would have more than sufficed to raise the enrolment ratio for the first-level from 83.7 per cent to 100.0 per cent. An obvious way of reducing the unit cost of third-level education is by using a mix of distance learning and face-to-face instruction in place of the exclusive use of face-to-face instruction, which is an overly expensive instructional mode.

Qualitative improvement in education

In the foregoing, attention has been concentrated on the achievement of quantitative targets in education as they are by far the most compelling in their demand for satisfaction. When investment in education is stretched to the limit to meet quantitative targets, it is inevitable that very little will remain for achieving qualitative improvements, and that the latter will assume a low priority. In a few countries of Asia, e.g., the Republic of Korea and Singapore, where increases in enrolment are tapering off as a result of the decline in fertility, it is possible to invest in quality improvements. The reduction of pupil-teacher ratios and the provision of increased supplies of teaching/learning materials are two examples of these quality improvements. In countries with rapid rates of population growth, such improvements can be effected only marginally, if at all. Hence, it is necessary to recognize that rapid population growth is a formidable obstacle to the qualitative improvement of education.

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[5] "Report of the Education Reform Committee [Thailand, 1977]". In Postlethwaite, T. Neville and R. Murray Thomas, eds. *Schooling in the ASEAN region.* London, Pergamon Press, 1980. p. 248.

[6] Thailand. Ministry of Education. Educational Planning Division. In Postlethwaite, T. Neville and R. Murray Thomas, eds. *Ibid.* London, Pergamon Press, 1980. P. 240.

The impact of education on demographic variables

Population change and educational development have a two-way relationship, with population change affecting educational development on the one hand and educational development affecting population change on the other. It is proposed to consider briefly a few facets of the latter.

1. Impact of education on fertility

That education exercises an inhibiting influence on fertility can be argued on a priori grounds as well as substantiated by empirical data. Some of the reasons why a higher level of education in women is likely to be associated with lower fertility are the following:

a) Education increases the opportunities for a career outside the home, which is likely to be interfered with by too many pregnancies;

b) Education increases aspirations for upward social mobility, which acts as a counter-attraction to motherhood;

c) Education increases expectations for the better education and employment of children, which are ideals more easily achieved in small families than in large families;

d) Education and employment of women improve their socio-economic position, making them less dependent on the economic support of children in old age;

e) Education delays the age of marriage, and reduces the span of the child-bearing years; and

f) Education is conducive to the development of attitudes and values, sensitive to improvements in quality of life, which are more easily attained in small families than in large families.

The following citations refer to empirical data. The first relates to the Republic of Korea, which has a low rate of population growth.

> According to the 1970 census data, the average number of children ever born per woman among those who studied beyond secondary-level was significantly lower (2.15) than among those who never attended school (5.21). Compared with 1966, the average number of children ever born increased in 1970 among those who never attended school as well as those who completed primary school. The number decreased among those who had attained education higher than primary level. When the average values are standardized for age, the fertility reduction between 1966–1970 among women with higher education is quite significant.[7]

The second refers to a high fertility country; Thailand:

> . . . among all rural and urban women, a strong relationship is apparent between years of schooling and number of children ever born. Rural women with five or more years of education bore, on the average, just over half as many children as those with no schooling. Urban women with ten or more years of education bore less than 45 per cent as many children as their counterparts with no schooling.[8]

2. Impact of education on mortality

It may be assumed that with education there would be a greater acquisition of health knowledge and readiness to use it, and also a greater propensity to seek both preventive and curative health services in the community. Higher incomes and occupational status, which are generally assured by a higher level of education, serve no doubt as intervening variables. Empirical findings are available from several Asian countries, but a citation from one, the Philippines, should suffice.

> . . . a linear positive relationship exists between educational attainment and life expectancy. A person with a college education could expect to live, on the average, for about 70 years, or 13 years more than a person with no schooling. On the other hand, one year of schooling lengthens one's life by about two years (59.3 years for those who have completed 1-4 grades as against 57.3 years for those with no schooling). Recent mortality conditions. . .empha-

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[7] ESCAP. *Population of the Republic of Korea.* Bangkok, 1975. p. 197.

[8] Knodel, John and Visid Prachuabmoh. "The fertility of Thai women." In: ESCAP. *Population of Thailand.* Bangkok, 1976. p. 76.

size the great advantage of having at least one year of education as against no education at all. The gain in life expectancy with just a year of schooling is approximately 11 years. This is a tremendous increase, especially when compared to the increment of only 0.87 a year for the same category under past mortality conditions.[9]

3. Impact of education on migration

A study of migration in three cities—Bangkok, Jakarta and Manila—showed that migrants were generally better educated than those who continued to remain at their places of origin. However, the general belief that the migrants' decision is partly influenced by the desire for a better education for themselves or their children was not supported by the data from the particular samples.[10]

Meeting the population challenge

The less-developed countries should think seriously about the direction in which they are going, in the context of the needs of the fast increasing child and youth population for whom educational provision has to be made. Their finances are unlikely to rise proportionately to the increase in the number of such children and youth, their conventional educational structures and methods will be unable to meet the challenges that confront them, while the search for new structures and methods is so far inconclusive. In other words, the goals of development need urgent reexamination.

The goal of development as postulated in the past two decades for the less-developed countries was that of attaining the same standard of living as the more-developed countries. Measured in terms of *per capita* income or the *per capita* consumption of luxury goods, the gap that separates the less-developed countries from the more-developed countries has been widening over the years and will continue to widen even more in the future. Clearly, the less-developed countries need to set before themselves modest goals that eschew the inexhaustible thirst of the developed world for material goods as if they formed the essence of a higher quality of life.

The incidence of crime, drug addiction and psychiatric disorder in the more-developed countries throws serious doubts as to whether these countries have in fact attained a high quality of life through their abundant enjoyment of material goods and comforts. It may well be the case that the less-developed countries would be wise to focus their attention on the achievement of a high quality of life through the enjoyment of simple and modest standards of material satisfaction, and the ennobling of the mind by humanistic, reflective and spiritual pursuits, rather than through an unending search for material goods and comforts. The social and economic philosophy of the less-developed countries needs a radical re-orientation that sets its sights on realistic goals which every man and woman can achieve within the context of the social and economic realities of these countries. Not every dimension of the social and economic reality is to be considered immutable. For example, there is much room for distributive justice so that the 'have-nots' receive a fair share of the national income. At the same time, there are certain social and economic realities that cannot be transcended and which set limits on the growth that is attainable.

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[9] ESCAP. *Population of the Philippines.* Bangkok, 1978. p. 112, 113.

[10] Mowat, Susanne. *Education and the urban migrant: a case study of migrants in Bangkok, Manila and Jakarta.* Bangkok, 1977. 112 p.

The more-developed countries have achieved a momentum that will carry them forward regardless of what may happen in the education sector, but in the less-developed countries the role of education is crucial. It is the vital task of education in the less-developed countries to respond creatively to the challenges facing them. Basically, the responses need to take the form of: (a) a postulation of meaningful and realistic goals for education in each country in accordance with its rethinking and re-formulation of national goals, hopefully with a greatly chastened concept of high quality of life; (b) a search for new educational structures to provide education in sufficient quantity and quality for children and youth without discrimination against the less-privileged; and (c) the development of a curriculum that meets contemporary needs and is geared to the processes of personal and national development. In connection with the curricu, lum, considering that rapid population growth and increasing urbanization are seen to act as constraints on the provision of education in quantitative and qualitative terms, an essential response of education to this state of affairs should be to include in the curriculum a strong component of population education that will provide an insight into the interrelationships between population change and development at the micro-level of the individual, and at the macro-level of the nation. All in all, the essential need of the 1980s is for new developmental, educational and population perspectives that are supportive of each other and can lead mankind to a life of richness and serenity.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

POPULATION AND DEVELOPMENT IN ASIA AND THE PACIFIC: A DEMOGRAPHIC ANALYSIS

by Nibhon Debavalya

Introduction

Although the first complete world census has yet to be taken, it is possible to reconstruct with reasonable accuracy the history of world population growth. During the Neolithic period (7000-6000 B.C.) the population of the world is estimated to have been from five to ten million. By the beginning of the Christian Era the population had reached about 300 million; by the beginning of the Modern Era (1650) about 500 million;[1,2] and by 1980 the total world population was approximately 4,432 million with an annual rate of growth of 1.7 per cent.[3] This rate appears to be consistent with the gradual declining trend of the growth rate that started around the middle of the 1960s when the total population of the world was growing at an estimated rate of 2 per cent annually. In the present United Nations projections (medium variant), it is assumed that the growth rate of the world population will be reduced to 1.5 per cent by the end of the present century and to 1 per cent by 2025. Accordingly, it is projected that the world population will increase to 6.1 billion in 2000 and 8.2 billion in 2025 (Table 1).

Despite the apparent reduction in the rate of population growth since the 1970s, the annual increment to the total world population has increased to the current level of about 75 million persons per year (Figure 1) and is expected to peak at 88.4 million persons between 1995 and the year 2000. Thereafter, the annual addition of people to the world population will decrease and by the year 2025 the annual increment is expected to be again about 75 million persons.

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1. Durand, John. "The modern expansion of world population," *Proceedings of the American Philosophical Society* 111(3):136-159, June 1967.

2. United Nations. *The determinants and consequences of population trends, Vol. I.* New York, 1973. 661 p.

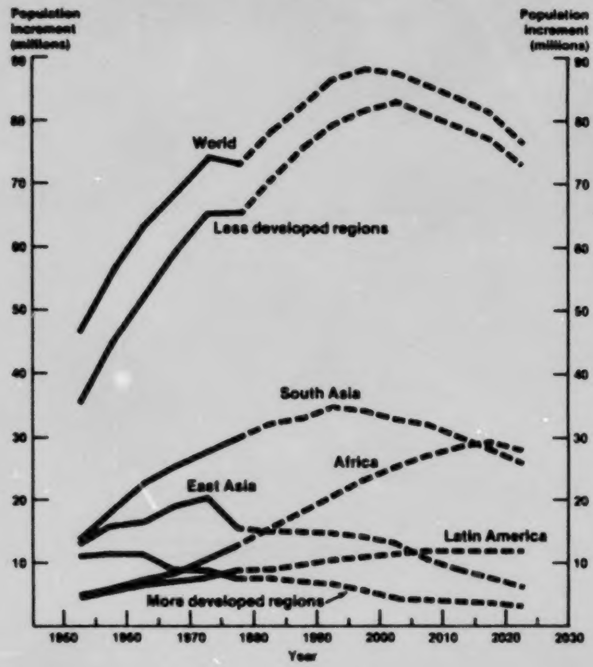
3. _____. *World population prospects as assessed in 1980.* New York, 1981. 101 p. (Population studies, no. 78)

Table 2. Population size and rate of increase for the major regions and areas, medium variant, 1960–2025, as assessed in 1980

	Population (millions)								*Average annual rate of growth (percentage)*							
	1960	*1970*	*1975*	*1980*	*1985*	*1990*	*2000*	*2025*	*1960-1965*	*1970-1975*	*1975-1980*	*1980-1985*	*1985-1990*	*1990-1995*	*1995-2000*	*2020-2025*
WORLD TOTAL	3 037	3 695	4 066	4 432	4 826	5 242	6 119	8 195	1.99	1.91	1.72	1.70	1.65	1.60	1.50	0.96
More developed regions	945	1 047	1 092	1 131	1 170	1 206	1 272	1 377	1.19	0.84	0.71	0.68	0.61	0.58	0.48	0.24
Less developed regions	2 092	2 648	2 974	3 301	3 656	4 036	4 847	6 818	2.33	2.32	2.08	2.04	1.98	1.89	1.77	1.10
Africa	275	355	407	470	546	635	853	1 542	2.48	2.73	2.90	3.00	3.02	2.99	2.90	1.91
Eastern Africa	77	100	115	134	156	183	250	478	2.63	2.76	2.94	3.09	3.17	3.17	3.12	2.09
Middle Africa	35	42	47	53	61	70	91	162	1.76	2.37	2.52	2.67	2.74	2.75	2.72	1.90
Northern Africa	65	83	94	109	126	144	186	296	2.33	2.58	2.88	2.87	2.77	2.62	2.45	1.47
Southern Africa	20	25	29	33	38	44	58	101	2.43	2.61	2.75	2.87	2.87	2.82	2.71	1.76
Western Africa	79	104	121	141	166	195	267	505	2.77	2.99	3.06	3.18	3.23	3.20	3.13	2.01
Latin America	216	283	322	364	410	459	566	865	2.80	2.54	2.45	2.38	2.28	2.15	2.02	1.48
Caribbean	20	25	28	31	34	37	43	62	2.27	2.06	1.84	1.82	1.74	1.71	1.64	1.19
Middle America	49	68	79	93	107	122	156	242	3.23	3.15	2.98	2.88	2.72	2.51	2.31	1.43
Temperate South America	31	36	38	41	44	47	52	62	1.66	1.33	1.33	1.29	1.20	1.09	0.99	0.55
Tropical South America	115	154	176	199	226	254	315	498	3.00	2.61	2.53	2.46	2.36	2.23	2.10	1.66
Northern America	199	226	236	248	261	274	299	343	1.49	0.86	0.95	1.04	0.95	1.05	0.70	0.42
East Asia	816	991	1 096	1 175	1 250	1 327	1 475	1 712	1.94	1.96	1.38	1.24	1.20	1.09	1.02	0.38
China	682	838	928	995	1 060	1 128	1 257	1 469	2.02	2.02	1.40	1.27	1.24	1.13	1.05	0.39
Japan	94	104	112	117	120	123	129	131	0.99	1.33	0.88	0.62	0.49	0.48	0.49	–0.07
Other East Asia	40	51	57	63	70	76	88	111	2.78	2.21	2.05	1.92	1.76	1.54	1.35	0.69
South Asia	877	1 116	1 257	1 404	1 565	1 731	2 075	2 819	2.40	2.36	2.22	2.17	2.02	1.90	1.72	0.95
Eastern South Asia	229	291	326	361	400	440	520	688	2.41	2.27	2.07	2.05	1.91	1.77	1.58	0.88
Middle South Asia	592	752	845	944	1 051	1 160	1 386	1 867	2.36	2.33	2.21	2.14	1.98	1.87	1.70	0.90
Western South Asia	56	74	85	98	114	131	168	264	2.76	2.94	2.84	2.89	2.78	2.63	2.42	1.47
Europe	425	459	474	484	492	499	512	522	0.91	0.63	0.40	0.34	0.30	0.27	0.24	0.03
Eastern Europe	97	103	106	110	113	116	121	131	0.68	0.55	0.71	0.61	0.49	0.43	0.43	0.23
Northern Europe	76	80	82	82	82	82	83	81	0.71	0.31	0.10	0.04	0.03	0.05	0.02	–0.10
Southern Europe	118	128	134	139	143	147	154	161	0.87	0.98	0.72	0.61	0.53	0.46	0.40	0.12
Western Europe	135	148	152	153	153	154	155	150	1.23	0.56	0.05	0.04	0.07	0.08	0.05	–0.16
Oceania	16	19	21	23	25	26	30	36	2.08	1.85	1.47	1.44	1.36	1.29	1.19	0.61
Australia-New Zealand	13	15	17	18	19	20	22	25	1.99	1.68	1.21	1.15	1.05	0.99	0.93	0.35
Melanesia	2	3	3	4	4	5	6	9	2.31	2.73	2.70	2.72	2.63	2.46	2.18	1.37
Micronesia-Polynesia	1	1	1	1	2	2	2	2	2.84	1.96	1.74	1.66	1.52	1.30	1.10	0.34
USSR	214	242	253	265	278	290	310	355	1.49	0.95	0.93	0.93	0.84	0.70	0.64	0.50

Source: United Nations. *World population prospects as assessed in 1980.* New York, 1981. 101 p. (Population studies, no. 78)

Figure 1. Annual average increment in population for the world, more developed regions, and less developed regions, medium variant, 1950–2025, as assessed in 1980



The significance of the global population trends cannot be understood without recognizing the diversity in the growth trends existing between the more and less developed regions.* Today the more developed regions account for 1.13 billion people, or approximately one fourth of the world total, and are growing at an annual rate of 0.7 per cent. This relatively low annual increase will further decline to 0.44 per cent in 2000 and is projected to reach 0.24 per cent by 2025. In terms of absolute numbers, the annual increase of the more developed regions' population will be around 7.3 million from 1975 to 2000 and 3.6 million from 2000 to 2025, which is much lower than their average annual increase of 10.5 million during the period from 1950 to 1975 (Figure 1). It is estimated that the total population of the more developed regions will reach 1.4 billion in the year 2025, which will be about 17 per cent of the world total at that time.

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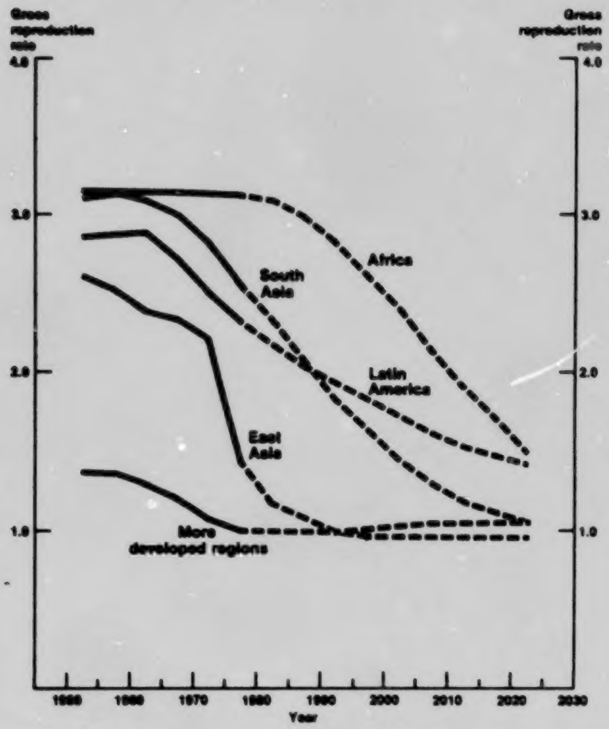
* The less developed regions include all regions of Africa, Asia (excluding Japan), Latin America and Oceania (excluding Australia and New Zealand). The more developed regions include all regions of Europe, the Union of Soviet Socialist Republics, Northern America and the regions just cited as being outside the less developed category.

Figure 2. Gross reproduction rate by region, medium variant, 1950-2025, as assessed in 1980



In contrast to the more developed regions, the proportion of the world population in the less developed regions has steadily grown from 67 per cent of the world total in 1950 to 74 per cent in 1980, and is expected to reach 79 per cent by the end of the century. It is also projected that by the year 2025 the less developed regions will make up 83 per cent of the world population total. Since 1950, the less developed regions have maintained an average annual growth rate of more than 2.2 per cent. Their current growth rate, estimated at 2.1 per cent, is expected to decline to 1.8 per cent by the year 2000 and reach 1.1 per cent by 2025. In terms of size, however, the proportional contribution of the less developed regions to the total world population is increasing. Whereas in the period from 1950 to 1955 about 75 per cent of the world population increase occurred in less developed countries, the contribution by the less developed countries in the year 2025 will be about 95 per cent of the world total increment. From a population size of around 2.1 billion in 1960 the less developed regions grew to 3.3 billion by 1980 and are projected to be about 4.9 billion by the end of the century and 6.9 billion in 2025.

Population trends in Asia and the Pacific*

A close examination of population trends shows that the new trends reflect demographic changes that have occurred in many developing countries in Asia and the Pacific. In East Asia, the population growth rate has declined rather rapidly from 1.94 per cent in 1960-65 to 1.38 per cent in 1975-80 and 1.24 per cent in 1980-85. Since nearly 85 per cent of this region's population is accounted for by China, demographic trends there virtually dictate the trends for the region as a whole. The available data suggest that the growth rate in China declined from 2.02 per cent in 1970-75 to 1.40 in 1975-80 and is expected to reach 1.27 per cent during 1980-85. The sharp decline in the population growth rate of China is expected to continue, reaching 1.05 per cent in the year 2000 and approximately 0.39 per cent by 2025. From these rates, it is anticipated that the population of East Asia will increase to 1.4 billion by the year 2000.[4,5] In addition, the growth rate has declined significantly in Japan and the Republic of Korea.

The growth rate is declining in Eastern South and Middle South Asia as well. Long-term declines have brought growth rates down in Sri Lanka, and Singapore. More recently, the rate of growth has also begun to fall in India, Indonesia, Malaysia, the Philippines, and Thailand, while it remains generally at high levels in Bangladesh, Nepal and Pakistan.[6]

In the Oceania region, 79 per cent of which is made up of Australia and New Zealand, the growth rate is also steadily decreasing. For example, the growth rate declined from 2.25 per cent in 1950-55 to 1.47 per cent in 1975-80. This trend is expected to continue, reaching approximately 1 per cent by the year 2000 and 0.6 per cent by 2025. If these predictions of declining growth rates prove to be correct, the total current population of Oceania, which is 22.8 million, will be about 36.1 million in 2025.[7]

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* The Asian and Pacific region includes East Asia, Eastern South Asia and Middle South Asia and Oceania.

[4] United Nations. *Op. cit.* 1981. 101 p.

[5] ________. *World population trends and policies—1979 monitoring report, Vol. I: population trends.* New York, 1980. 233 p. (Population studies, no. 70)

[6] U.S. Bureau of the Census. *World population 1979: recent demographic estimates for the countries and regions of the world.* Washington, D.C., 1980. 502 p.

[7] United Nations. *Op. cit.* 1981. 101 p.

Despite the decrease in the growth rate of Asia and the Pacific, especially during 1980-2000, in absolute terms its growth will be the largest in the world during these 20 years; 908 million out of 1,687 million of the total growth. Asia and the Pacific will contribute more than 45 million people a year during the final 20 years of this century.

Table 2. Total population of the countries of Asia and the Pacific: 1960-2000 (in thousands)

Region and country or area	1960	1970	1980	1990	2000
East Asia	815,824	993,977	1,174,873	1,327,047	1,474,669
China	682,024	838,396	994,913	1,127,636	1,257,298
Japan	94,096	104,331	116,551	123,185	129,282
Hong Kong	3,075	3,942	5,106	6,250	6,973
Democratic People's Republic of Korea	10,526	13,892	17,892	22,443	27,256
Republic of Korea	25,003	31,923	38,455	45,022	50,786
Macau	169	245	287	341	388
Mongolia	931	1,248	1,669	2,170	2,686
Eastern South Asia	228,852	290,701	361,245	440,266	520,441
Brunei	90	133	228	324	386
Burma	22,254	27,748	35,289	44,738	55,108
Democratic Kampuchea	5,433	6,938	6,747	8,713	10,609
East Timor	500	604	755	943	1,147
Indonesia	97,711	122,211	148,033	173,530	198,687
Lao People's Democratic Republic	2,382	2,962	3,721	4,682	5,729
Malaysia	8,170	10,863	14,068	17,689	21,269
Philippines	28,098	37,540	49,211	62,830	77,036
Singapore	1,634	2,075	2,390	2,713	2,967
Thailand	27,229	36,499	47,063	57,890	68,609
Socialist Republic of Viet Nam	35,351	43,128	53,740	66,214	78,894
Middle South Asia	591,797	752,243	944,142	1,159,933	1,386,256
Afghanistan	9,820	12,342	15,940	20,618	26,528
Bangladesh	51,446	68,278	88,164	116,164	148,361
Bhutan	857	1,045	1,296	1,628	2,030
India	439,441	552,469	684,460	820,860	960,611
Iran	21,554	28,359	38,126	51,033	64,916
Maldives	92	114	154	202	254
Nepal	9,327	11,416	14,288	17,986	22,493
Pakistan	49,371	65,706	86,899	113,376	139,987
Sri Lanka	9,889	12,514	14,815	18,066	21,076
Oceania	15,782	19,332	22,820	26,247	29,702
Australia	10,315	12,552	14,488	16,170	17,795

Table 2. Total population of the countries of Asia and the Pacific: 1960-2000 (in thousands) (cont'd)

Region and country or area	1960	1970	1980	1990	2000
New Zealand	2,372	2,820	3,268	3,650	4,024
Melanesia	2,188	2,780	3,645	4,764	6,006
New Caledonia	79	110	142	163	181
Norfolk Island	1	2	2	2	2
Papua New Guinea	1,920	2,419	3,154	4,113	5,179
Solomon Islands	123	163	229	324	433
Vanuatu	65	86	118	162	211
Micronesia	208	266	327	386	443
Guam	67	86	103	117	130
Kiribati	41	49	58	67	75
Nauru	5	7	7	8	9
Niue	4	5	4	4	4
Pacific Islands	78	103	137	170	202
Tuvalu	5	6	7	8	9
Other Micronesia	8	10	11	12	14
Polynesia	699	914	1,092	1,277	1,434
American Samoa	21	27	32	38	43
Cook Islands	18	21	19	20	22
Fiji	394	520	630	736	817
French Polynesia	82	109	147	183	218
Samoa	111	143	157	171	184
Tonga	65	85	97	119	140
Wallis and Futuna Islands	8	9	10	10	10

Source: United Nations. *World population prospects as assessed in 1980.* New York, 1981. 101 p. (Population studies, no. 78)

Fertility trends

For the world as a whole, the new estimates and projections indicate a slow but steady decline of the crude birth-rate from 36.3 per 1,000 in 1950-1955 to 28.5 in 1975-1980, then to 23.9 in 1995-2000, and finally to 17.9 in 2020-2025 (Table 3). In terms of the gross reproduction rate (a measure of the reproduction of a population expressed as an average number of daughters that would be born to a cohort of women during their reproductive ages, assuming no mortality and a fixed schedule of age-specific fertility rates) the world would experience a fertility decline from 1.92 in 1975-1980 to 1.46 in 1995-2000 and 1.15 in 2020-2025. Since 1950, it is estimated that the gross reproduction rate increased, reached its peak of 2.21 in 1970-1975, and has been steadily declining ever since.

The decline in fertility during the latter part of this century would accrue mainly in the less developed regions (Figure 2 on page 26). For

Table 3. Crude birth-rate and gross reproduction rate by region, medium variant, 1950-1955, 1975-1980, 1995-2000 and 2020-2025, as assessed in 1980

Region	Crude birth-rate				Gross reproduction-rate			
	1950-1955	1975-1980	1995-2000	2020-2025	1950-1955	1975-1980	1995-2000	2020-2050
World total	36.3	28.5	23.9	17.9	2.41	1.92	1.46	1.15
More developed regions	22.7	15.8	14.3	13.7	1.38	1.00	1.00	1.04
Less developed regions	42.9	33.0	26.5	18.7	2.98	2.27	1.58	1.17
Africa	47.9	46.0	39.8	25.5	3.15	3.13	2.64	1.49
Latin America	42.4	33.6	27.1	21.6	2.86	2.24	1.64	1.35
Northern America	25.1	16.3	14.4	13.7	1.69	0.94	1.01	1.02
East Asia	37.7	21.0	17.2	13.3	2.61	1.46	0.96	0.96
South Asia	44.2	37.1	26.9	17.3	3.10	2.57	1.63	1.05
Eastern South Asia	45.7	35.2	24.6	16.6	2.96	2.40	1.42	1.01
Middle South Asia	43.4	37.6	27.2	17.1	3.15	2.62	1.66	1.04
Western South Asia	45.8	39.6	31.6	20.8	3.14	2.82	2.05	1.23
Europe	19.8	14.4	13.1	12.8	1.26	0.96	0.91	1.02
Oceania	27.6	21.8	18.9	15.8	1.86	1.39	1.22	1.10
USSR	26.3	18.3	16.4	15.3	1.38	1.16	1.14	1.10

Source: United Nations. *World population prospects as assessed in 1980.* New York, 1981. 101 p. (Population studies, no. 78)

example, whereas the gross reproduction-rate for the more developed regions would remain essentially unchanged between 1980 and 2000, it would decline from 2.15 to 1.42 in the less developed regions. In addition, by 2025 the gross reproduction rates for the more developed and less developed regions are expected to be relatively close to each other, 1.04 and 1.17 respectively.[8]

It is now well established that fertility control, or childbearing by choice, has been practised increasingly in a growing number of developing countries. Indeed, the largest developing country, China, had a birth-rate estimated at about 21 in 1975-1980; and the second and third largest countries–India and Indonesia, had estimated rates in the range of 33-35.

Japan, Australia and New Zealand, the developed countries in Asia and the Pacific, had estimated birth-rates in the range of 15 to 18 in 1975-1980. Such fertility levels are similar to the other developed countries.

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[8] United Nations. *Op. cit.* 1981. 101 p.

In contrast with the high levels which prevail in Western and Middle South Asia, fertility declines of considerable magnitude have been achieved in some countries in East and South Asia. Foremost is China, where the existence of a large decline is recognized by all writers, though they differ on its magnitude.[9, 10] Four small countries in East and South Asia had birth-rates below 30 in 1975-1980, and eight more had moderate levels of between 30 and 40. In many of these countries, modernization movements as well as family planning programmes are under way. Though the greater contribution to the decline in these countries was generally brought about by lower marital fertility rates, there is evidence that age at marriage had a significant role in some countries.[11, 12, 13]

Mortality

During the last several decades trends in mortality throughout the world have covered a very wide range. At the global level, the world enjoyed an appreciable reduction in mortality and increase in life expectancy at birth from 47.1 years in 1950-1955 to 57.5 years in 1975-1980 (Table 4). Life expectancy at birth is projected to further increase to 63.9 in 1995-2000 and 70.4 in 2020-2025.

As was the case with fertility, the largest gains in mortality reduction have accrued among the less developed regions. For example, between 1950 and 1980 the gain in life expectancy at birth for the less developed regions was 13 years as compared to 7 years for the more developed regions. It is anticipated that between 1980 and 2000 the major increases in life expectancy will continue to occur in the less developed regions; a gain of 7.4 years compared with a gain of 1.8 years in the more developed regions.

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9. United Nations. *Op. cit.* 1981. 101 p.
10. U.S. Bureau of Census. *Op. cit.* 1980. 502 p.
11. Debavalya, Nibhon. 'Patterns of fertility decline in Asia with special reference to Thailand'. In: International Population Conference, Manila, 1981. *Solicited paper, Vol. I.* Liege, International Union for the Scientific Study of Population (IUSSP), 1981. p. 55-69.
12. Mauldin, Parker. 'The determinants of fertility decline in LDS's: an overview of the available empirical evidence'. In: International Population Conference, Manila, 1981. *Solicited papers, Vol. I.* Liege, International Union for the Scientific Study of Population (IUSSP), 1981. p. 5-24.
13. Smith, Peter C. 'Asian marriage patterns in transition'. *Journal of family history* 5, 1980.

Table 4. Crude death-rate and life expectancy at birth (both sexes) by region, medium variant, 1950–1955, 1975–1980, 1995–2000 and 2020–2025, as assessed in 1980

Region	Crude death-rate				Life expectancy at birth			
	1950-1955	1975-1980	1995-2000	2020-2025	1950-1955	1975-1980	1995-2000	2020-2025
World total	18.9	11.4	9.0	8.4	47.0	57.5	63.9	70.4
More developed regions	10.1	9.4	10.0	11.6	65.2	71.9	73.7	75.4
Less developed regions	23.2	12.1	8.7	7.7	42.4	55.1	62.5	69.6
Africa	27.4	17.2	10.8	6.5	37.3	48.6	57.8	67.2
Latin America	15.4	8.9	6.8	6.7	51.2	62.5	68.1	71.8
Northern America	9.4	9.1	9.2	10.7	69.0	73.0	74.1	75.1
East Asia	19.2	7.3	7.0	9.5	47.5	67.6	72.7	74.8
South Asia	25.8	14.8	9.7	7.9	39.4	50.6	59.5	68.6
Eastern South Asia	25.3	13.7	8.9	7.8	39.4	52.5	61.8	69.8
Middle South Asia	26.5	15.5	10.3	8.1	38.9	49.2	57.9	67.7
Western South Asia	20.3	11.7	7.5	6.1	44.7	57.9	65.2	71.5
Europe	10.9	10.5	10.7	12.5	65.4	72.0	74.3	75.7
Oceania	12.4	9.0	8.4	9.2	60.7	65.6	70.2	73.8
USSR	9.2	9.0	9.9	10.3	61.7	69.6	71.5	74.6

Source: United Nations. *World population prospects as assessed in 1980.* New York, 1981. 10[illegible] p. (Population studies, no. 78)

A widespread, though not universal, feature of recent mortality trends appears to be a recent slow-down in progress, which in some places is manifested by a cessation in mortality decline. The explanation for this development differs for various parts of the world. For countries where mortality was already very low, the recent trend can be attributed to the technical difficulties in achieving additional improvements. The recent trend in areas where mortality figures remain well below the optimum level can be explained only in terms of the economic, social and technological difficulties faced by the countries involved.

The data for Asia also indicate that mortality declines have slowed during recent years. The Asian situation in the early 1970s may be summarized in the following manner: although six relatively small countries and territories can be placed in the low-mortality category (life expectancy above 60 years), in 11 countries, mostly large and including Bangladesh, India, Indonesia and Pakistan, the mortality level is in the high category (life expectancy below 50). Another ten countries, including China, appear to belong in the medium range (life expectancy of 50-60 years).

In contrast to the relatively low levels of life expectancy in some less developed countries, Japan, Australia and New Zealand have life expectancies at birth of 70 years or more. Any further increment in these levels would naturally be rather small.

International migration

International migration continues to show significant shifts in pattern and direction. Broadly speaking, the current flow may be characterized as predominantly a movement from less developed towards more developed countries, both between and within the developed and developing regions of the world. Secondly, the numerically more important pattern has become one of movement across international boundaries by workers and members of their families ostensibly (and in the eyes of the sending and receiving Governments) for a temporary stay. Thus, international migration has come to reflect in particular the prevailing international economic order.

Having considered the international migration to and from Asia and the Pacific, some substantial shifts in patterns of international migration have occurred in the flow of workers into the oil-rich countries of Middle and Western South Asia. Migrants come mostly from countries within the region, and there are growing numbers from India, Pakistan, the Philippines, Thailand and elsewhere. In many of the receiving countries, migrant workers comprise a very substantial proportion of the total labour force–between two thirds and one third.

The other developed countries having large-scale international migration in this region–Australia and New Zealand–have had comparatively little experience with temporary labour migration although New Zealand has had some guest workers from the islands of the Pacific. However, international migration has had a marked impact on the population of Australia and New Zealand. In Australia, about 20 per cent of the population are foreign-born; in New Zealand, approximately 15 per cent, with a net immigration of about 60,000 per annum in Australia and just over 15,000 in New Zealand.[14]

Traditionally, these countries drew most of their immigrants from Europe. During the 1960s there was a shift of origin and each began to receive increasing proportions of its immigrants from the countries of Africa, Asia and Latin America.

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[14] United Nations. *Op. cit.* 1980. 233 p.

Population distribution and urbanization

Reflecting high rates of natural increase, the world urban and rural populations alike are growing rapidly. The urban population grew by an estimated 207 million between 1970 and 1975 or at an annual rate of 41 million per annum (Table 5). Of this growth, 31 per cent occurred in more developed regions and 69 per cent in less developed regions. The more rapid urban accretion in less developed regions brought the urban population of the two groups of countries into approximate parity by 1975, when 49.2 per cent of the world urban population lived in more developed regions. Urban growth between 1970 and 1975 was distributed very widely among the less developed regions. Africa was estimated to have gained 23 million urbanites; Latin America, 36 million; East Asia (excluding Japan), 35 million; and South Asia, 48 million. By the year 2000 the majority, nearly two-thirds (65.9 per cent), of the world urban population is projected to reside in the less developed regions.[15]

Currently, 85 per cent of the world rural population live in less developed countries, and the figure is projected to increase to 90 per cent by 2000. On the other hand, the rural population of more developed countries is in the midst of a slow decline which is projected to continue until the end of the century.[16]

In 1975, an estimated 39.3 per cent of the world population lived in urban areas (67.8 per cent in the more developed regions and 27.9 per cent in the less developed). The average annual gain in the urban percentage between 1975 and 2000 is projected at 0.61 per cent in less developed regions and 0.50 per cent in more developed regions. If the projections prove to be accurate, the next century will begin just after the world population achieves an urban majority; in 2000, the world is projected to be 51.25 per cent urban. Nevertheless, in Eastern and Western Africa, China and South Asia, rural residents are still expected to outnumber urban residents by more than 50 per cent (Table 6).

Recent estimates prepared by the Population Division of the United Nations Secretariat suggest that the bulk of urban growth in less developed countries results from the natural increase of the urban population. Of the 29 developing countries for which data are sufficient to support an analysis of components of change, an average of 60 per cent of urban growth between the last two censuses was ascribed to this source. The remaining 40 per cent is attributable to net migration from rural areas and

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15. United Nations. *Patterns of urban and rural population growth.* New York, 1980. 175 p. (Population studies, no. 68)

16. ________. *Op. cit.* 1980. 233 p.

Table 5. Urban population of the world and various selected regions, 1950-2000 (in thousands)

	1950	1960	1970	1980	1990	2000
World total	724,147	1,012,084	1,354,357	1,806,809	2,422,293	3,208,028
More developed regions	448,929	572,730	702,876	834,401	969,226	1,092,470
Less developed regions	275,218	439,354	651,481	972,408	1,453,067	2,115,558
East Asia	112,812	194,734	265,153	359,457	476,462	622,441
China	61,393	121,716	166,710	230,652	320,393	443,213
Japan	41,977	58,712	74,386	91,970	104,668	114,128
Other East Asia	9,442	14,306	24,057	36,835	51,401	65,100
South Asia	104,883	146,902	217,290	329,760	515,685	790,685
Eastern South Asia	25,694	38,014	56,640	85,863	134,525	207,672
Middle South Asia	74,096	99,794	143,883	214,900	335,677	517,642
Western South Asia	5,093	9,094	16,767	28,997	45,483	65,371
Oceania	7,736	10,443	13,675	17,829	22,590	27,145

Source: United Nations. *Patterns of urban and rural population growth.* New York, 1980. 175 p. (Population studies, no. 68)

Table 6. Proportion of population living in urban areas and regions, 1950-2000 (percentage)

	1950	1960	1970	1975	1980	1990	2000
World total	28.95	33.89	37.51	39.34	41.31	45.88	51.29
More developed regions	52.54	58.73	64.68	67.49	70.15	74.87	78.75
Less developed regions	16.71	21.85	25.82	28.03	30.53	36.46	43.46
Africa	14.54	18.15	22.85	25.67	28.85	35.70	42.49
Eastern Africa	5.50	7.54	10.69	13.20	16.14	22.72	29.41
Middle Africa	14.57	18.10	25.16	29.66	34.37	43.65	51.56
Northern Africa	24.51	29.77	36.61	40.12	43.83	51.39	58.34
Southern Africa	37.27	41.70	43.76	44.81	46.49	51.48	57.90
Western Africa	10.15	13.48	17.27	19.58	22.29	28.65	35.92
Latin America	41.18	49.45	57.37	61.21	64.74	70.70	75.21
Caribbean	33.51	38.22	45.08	48.62	52.15	58.74	64.62
Middle America	39.75	46.71	53.88	57.37	60.75	66.95	72.17
Temperate South America	64.77	72.74	77.87	80.16	82.18	85.45	87.83
Tropical South America	36.29	46.36	56.05	60.70	64.85	71.52	76.17
Northern America	63.84	67.09	70.45	71.99	73.66	77.20	80.76
East Asia	16.72	24.71	28.61	30.70	33.05	38.63	45.43
China	11.00	18.60	21.60	23.29	25.41	31.07	38.61
Japan	50.20	62.40	71.30	75.08	78.24	82.93	85.86
Other East Asia	28.61	36.31	47.46	53.43	58.85	67.51	73.03
South Asia	15.65	17.80	20.45	22.02	23.95	29.10	36.13
Eastern South Asia	14.83	17.52	20.02	21.38	23.15	28.10	35.10
Middle South Asia	15.59	17.19	19.40	20.77	22.53	27.48	34.48
Western South Asia	23.38	32.52	44.48	50.45	55.75	63.49	68.50
Europe	53.70	58.42	63.94	66.45	68.83	73.25	77.11
Eastern Europe	41.48	47.90	53.26	56.26	59.31	65.23	70.56
Northern Europe	74.32	76.73	81.28	83.32	85.12	87.95	89.92
Southern Europe	41.01	46.15	52.90	56.25	59.41	65.26	70.31
Western Europe	63.92	69.20	74.38	76.25	70.08	81.36	84.27
Oceania	61.24	66.22	70.77	73.35	75.93	80.37	82.97
USSR	39.30	48.80	56.70	60.90	64.77	71.28	76.06

Source: United Nations. *Patterns of urban and rural population growth.* New York, 1980. 175 p. (Population studies, no. 68) to reclassification of places from rural to urban. The fraction of growth attributable to migration/reclassification appears to have been relatively stable with a slight tendency to decline. In more developed countries, on the other hand, the figures are nearly reversed: an average of 59 per cent of intercensal growth in 20 countries was attributable to migration/reclassification, of which the reclassification component is undoubtedly quite important.

Among developing countries, net rural-urban migration appears to be a more important contributor to urban growth in those countries which are more advanced economically and where economic growth has been relatively rapid. Rural net out-migration is highly and positively correlated with the level of gross national product *per capita.* It is also highly and significantly correlated with the growth rate of labour productivity in agriculture in a country. Viewed in a comparative context, rural-urban migration apparently plays a less erratic and disruptive role in economic and social development than sometimes appears to be the case at a national level.[17]

It should be noticed that the number of people living in urban centres in Asia is increasing very rapidly where many of the larger cities are doubling in size every ten years. Another noticeable characteristic of the Asian region is that the big, usually multi-million, cities are growing at a startlingly rapid rate. These large dominant cities, (for example, Bangkok, Bombay, Calcutta, Jakarta, Manila, Rangoon, Seoul, Kuala Lumpur) are known as 'primate cities'. This term describes an urban centre which 'stands out alone in a different order of magnitude and significance from those of all other cities in a country'.[18]

Certainly the Asian region's metropolitan cities stand out. The population of Bangkok is more than 45 times as large as the next largest city in Thailand–Chiangmai. The population of Manila is more than five times as large as that of Davao, the second largest city in the Philippines. Viewing this issue another way: of the total urban population of the Philippines, nearly 40 per cent live in Manila/Quezon City. Of the total urban population of the Republic of Korea, more than 40 per cent live in Seoul. Of the total urban population of Thailand, more than half live in Bangkok–Thonburi. Primate cities are not, however, a unique characteristic of the Asian region. They are equally a phenomenon of other developing regions as well.

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17. United Nations. *Op. cit.* 1980. 233 p.

18. Unesco. "Population growth and distribution in the Asian region." In: *Population education in Asia: a source book*, Section 3. Bangkok, 1975. 46 p.

Population and development

Although much attention has been focused on the relationship of high fertility and high population growth rates to economic development, many other facets of population may also affect both economic and social development. It should be pointed out that the earlier tendency among scholars as well as government officials, including planners, was to use Gross National Product (GNP), or Gross Domestic Product (GDP), or some measure of income *per capita*, as an index of economic development. It has been recognized more and more, however, that such an index is simplistic and even misleading. Similarly, it has become increasingly apparent that development embraces more than the economic; it includes the social in a broad sense as well.[19, 20]

In response to the failure of the GNP growth strategy to improve the lot of the poorest people in the least developed countries (LDCs), it has been proposed that the priority target in raising levels of living be that of meeting the basic needs of the poorest population elements. It has come to be recognized that increasing GNP *per capita* in the developing countries does not necessarily result in the betterment of the most poor. On the contrary, in a number of LDCs, increases in GNP *per capita* were accompanied by diminished shares of total national income by the poorest elements. To meet basic needs, the objective would be to reach minimum levels of private and social consumption—the former including food, shelter, and clothing, and the latter, potable water, environmental sanitation, public transportation, and health and education facilities. The social consumption levels may also be taken to include opportunity for participation—the achievement of certain non-material things, such as human rights and a voice in public policy and programmes. Obviously, meeting basic needs requires, within each LDC, equitable income distribution or, at least, improved income distribution to the lowest income groups.[21]

Meeting basic needs, then, at least requires a dual target for each LDC—an increase in GNP *per capita* on the one hand, and a redistribution of income in favour of the poor on the other. Population growth, distribution, composition and quality can have important effects on both of these targets. Much remains to be learned about specific impacts of these

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19. Hauser, Philip M. "Introduction and overview." In: Philip M. Hauser, ed., *World population and development: challenges and prospects.* Syracuse, N.Y., Syracuse University Press, 1979. p. 1-62.

20. Ware, Helen. *Women, demography and development.* Canberra, Australian National University, Development Studies Center, 1981. (Demography teaching notes, 3)

21. Hauser, Philip M. *Op. cit.* 1979. p. 1-62

facets of population in various social, economic and political contexts among the LDCs.

In the Asian region, as we have seen, the death rate has fallen rapidly while decreases in the birth-rate are generally expected to take place at a much slower rate. In other words, the gap between the birth-rate and the death rate will remain large, resulting in a significant increase in population. The largest gain in population is likely to be in South Asia when the population is expected to increase by nearly 1,200 million people between the years 1960 and 2000. In Middle South Asia, the population increase during the period will be as much as 794 million. The population of East Asia will also experience a considerable gain during the latter half of the century, but at a slower rate due to a projected decline in fertility. During the same period, the population of East Asia may increase by about 659 million.

As a result of high fertility in the Asian region in the past, a large presence of young people, particularly the 0-14 years age group, is of special concern, since children in this group require special care for health and education. Where the general level of income is low, this high proportion of children and youth poses special problems for social and economic development (see Table 7).

Table 7. Percentage distribution of population by broad age groups for the world and various selected regions 1975, 1985 and 2000, medium variant

	1975			1985			2000		
	0-14	15-64	65^+	0-14	15-64	65^+	0-14	15-64	65^+
World total	36.4	58.0	5.6	34.4	59.9	5.7	31.8	61.9	6.3
More developed regions	24.8	64.6	10.6	22.3	66.5	11.2	21.5	65.3	13.2
Less developed regions	40.6	55.6	3.8	38.2	57.8	4.0	34.4	61.0	4.6
East Asia	34.0	60.5	5.5	28.3	65.5	6.3	24.3	67.9	7.8
South Asia	43.1	53.9	3.0	41.3	55.6	3.1	36.1	60.2	3.7
Eastern South Asia	43.4	53.7	2.9	41.4	55.6	3.1	34.8	61.1	4.0
Middle South Asia	42.8	54.2	2.9	41.1	55.9	3.0	36.1	60.4	3.5
Western South Asia	43.6	52.6	3.7	42.6	54.0	3.5	39.0	56.9	4.0
Oceania	31.1	61.4	7.5	28.4	63.5	8.1	26.1	65.0	8.9

Source: United Nations. *World population trends and prospects by country, 1950-2000: summary report of the 1978 assessment.* New York, 1979. 98 .

1. Population and resources

Agriculture still remains the main source of employment and income for a large majority of the population in Asia and the Pacific. In fact, both the agricultural population and the agricultural labour force have grown substantially. The growth, despite high rates of movement away from agriculture, is a reflection of the large proportion of agricultural population in relation to the total population and the high total population and labour force growth rate in this region.

The pressure on the available agricultural land has been maintained and in some cases increased in the developing regions. For Asia and the Pacific, the agricultural land/worker ratio declined from 1.01 in 1970 to 0.98 hectares per worker in 1976, and the agricultural land/agricultural population ratio also declined from 0.39 to 0.37 hectares per person in the same period. Most of the poorer countries that have severe land limitations and extremely large populations are in Asia. In these countries, food availability is largely a function of rice production, and rice production is, in turn, a major source of income. Their immediate need is to increase the rice harvest (one tonne per hectare, compared to five tonnes per hectare in developed countries). The poor countries lack the capital needed to increase their rice production. For them, sustained assistance in capital, food, fertilizers and appropriate technology is necessary.

In addition, the consequential rates of change in *per capita* terms indicate, respectively, productivity in agriculture. These rates indicate that, mainly as a result of continuous growth in the agricultural population and the labour force, growth rates of output per person and productivity per worker have been low in Asia and the Pacific. It should also be mentioned in this regard that the low productivity of agricultural workers in many developing countries, although primarily due to technique and input, is influenced by the low calorie intake of the workers, therefore creating a vicious circle of low income/low demand/low production.

According to calculations, natural resource availability in the world would be enough, if equitably distributed amongst all of its population. The world is faced with serious regional imbalances in population-resource densities. In many countries in Asia and the Pacific, the binding constraint on economic and social development in the next several decades is the availability of material and environmental resources and the capacity to utilize these resources in productive ways. This capacity varies considerably between countries depending on a host of domestic and international factors. In those countries where population growth is straining the capacity to use resources productively, their economic and social progress is restricted as severely as if the resources themselves were in short supply and a reduction in population growth would clearly be beneficial. But, given the fact that such capacity can be enhanced—through education, research, the importation of capital and know-how from abroad, and changes in the domestic and international rules governing economic activities—there would seem to be no need nor justification for the application of draconian measures even in the most hard-pressed cases.[22]

2. Population and human resource development

Many LDC governments in this region also face difficult problems with respect to human resource development. Malnutrition is one of the serious problems. In fact, the largest population at risk from under-nutrition is that in Asia and the Pacific. Over 60 per cent of the total number of malnourished in the developing countries are in this region, (more than one quarter of its total population). Although the proportion of the under-nourished in the total population in Africa is similar to that in Asia and the Pacific, the actual numbers involved are less than one third of those in the Asian region. The situation in these two regions, particularly during the period 1972-1974, was worse than in 1969-1971, both in absolute numbers and in proportions of the under-nourished population, although the difference in numbers in the two periods appears to be within the statistical margin of error of the estimates. In the developing countries, there is a direct relationship between income and the amount of calories consumed. With higher incomes, caloric consumption increases and the quality of the diet also improves through a greater animal protein intake.[23]

An important illustration of the impact of demographic trends on education which affects the educational status of population in developing countries, is that despite a considerable increase in primary and secondary school enrolment, the numbers of those who are not in school still show a slight increase. Data prepared by the United Nations Educational, Scientific and Cultural Organization (Unesco) show that, although the total enrolment of 6-11 year old children increased impressively from 46 to 62 per cent between 1960 and 1975, the numbers of those out of school rose from 110 million to 121 million. This represented an addition of 11 million to the number of illiterates. During the same period in Asia the enrolment of children aged 6-11 years increased from 48 to 61 per cent while the number out of school increased from 65.7 million to 77.2 million according to available figures.

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[22] Ridker, Ronald G. "Resource and environmental consequences of population." In: Philip M. Hauser, ed. *World population and development: challenges and prospects.* Syracuse, N.Y., Syracuse University Press, 1979. p. 99-123.

[23] Monckeberg, Ferdinand. "Food and world population: future perspectives." In: Philip M. Hauser, ed. *World population and development: challenges and prospects.* Syracuse, N.Y., Syracuse University Press, 1979. p. 124-144.

The accelerated growth of the labour force, particularly unskilled labour, has exacerbated the already severe problems of creating sufficient employment opportunities and increasing the productivity per worker. Increasing concentrations of people in ever larger urban agglomerations and accompanying migratory streams are generating severe problems–environmental, physical, personal, social, economic and governmental. The human misery resulting from accelerated rates of urbanization is more intense in the LDCs because of more severe conditions of life associated with poverty and more rapid rates of urbanization and internal migration. The quality of the population as affected by the investment in human capital is a critical element in achieving development. Investment may take a number of forms, such as investment in formal schooling, vocational training, adult education, health, in-service on-the-job training and migration and adjustment to new community living. Just as investment in human resources has been a major factor in accounting for economic growth in the more developed countries, so it may also be a prerequisite to development in the less developed countries.

Summary and conclusion

Some time during the 1960s the rate of world population growth began to slow, finally reversing a long-term trend of accelerated increase which reached unprecedented levels in the post-Second World War period. Although a complex mix of national situations underlay this international trend, undoubtedly the single most important component contributing to this historic turnaround in world population growth rates has been the initiation of declining fertility in a number of less developed countries, especially in Asia. The demographic transition, close to completion in most of the more developed countries, has finally entered the stage of falling birth rates in a number of Asian and Pacific, as well as the other, developing countries following the earlier reductions in death rates over the last several decades.

It is recognized that population is related to development, either as an accelerating or impeding factor. Many Governments in this region consider that controlling the components of their population trends is of vital importance to the future success of their development plans. They realize, however, that they have population problems which are not limited to population growth. Thus, of all demographic variables, spatial distribution is identified by almost all Governments as an important problem. However, the trend in the rate of population growth is still a main concern of most Governments. Governmental action in this area is now more widely recognized as essential for the achievement of development objectives. It should be emphasized that the successful management of population and development may well be critical in determining the quality of life and perhaps even the survival of humankind in the coming decade.

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SECTION TWO

POPULATION EDUCATION IN COUNTRIES OF THE REGION

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

AFGHANISTAN

by Batenshah Zafarsai and Sher Mohammad Khawar

Population situation and characteristics

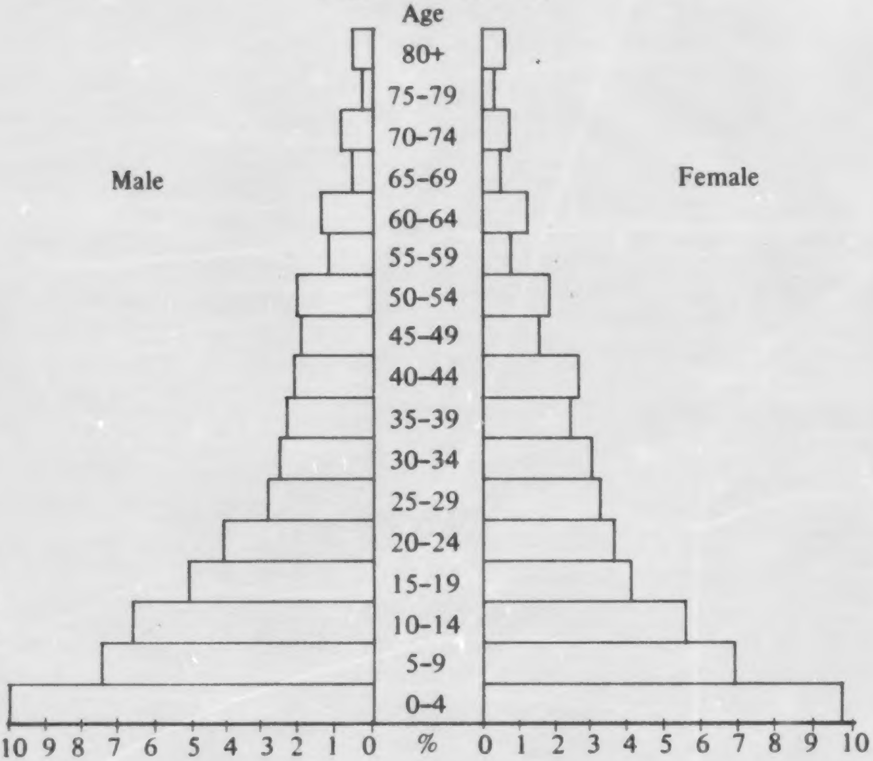
The first ever population census in Afghanistan took place in 1979. Previously the administration relied on estimates as a basis for development plans. This census, despite some difficulties experienced in gathering data, has shown that earlier figures regarding population size and characteristics were inaccurate. Amongst other things the results show a significant disparity between the urban and rural populations. Rural dwellers generally have a higher birth rate, higher infant mortality and a higher percentage of population growth. Another important feature related to population education is the overall low literacy rate. Within this low level of literacy urban dwellers are two times more literate than those in the villages while rural men are six times more literate than rural women.

In the Preliminary Report of the 1979 Census, it was estimated that the total sedentary population of Afghanistan was 13,051,358. The nomadic population was estimated to be about 2.5 million. The population density was estimated at about 20 persons per square kilometre. The population is, however, unevenly distributed. For example in Kabul province the density of population is about 105 persons per square kilometre, whereas in Neem Rose province it is only about three persons per square kilometre. The urban population was estimated at 1,976,738 (15.1 per cent) while the rural population was estimated to be 11,074,620 (84 per cent). Out of the total urban population, a very large proportion is concentrated in a handful of cities. Kabul City alone accounts for 46.2 per cent of the total urban population. Kandahar, Herat, Mazari-Sharif, Kunduz and Jalalabad together hold 26.8 per cent, while the remaining 27 per cent are distributed in the rest of the country.

The 1979 census revealed that the sex ratio (i.e. number of men divided by the number of women and multiplied by 100) was 109 for urban, 105 for rural and 106 for the total sedentary population. The age composition of the population is shown in the following age pyramid.

The literacy rate is about 23.5 per cent overall (this may be an overestimate); 37.3 per cent for males and 8.8 for females. Seventy-three per cent of school age children are not attending school.

Age pyramid of Afghan sedentary population by sex: 1979
(Figures unadjusted)



Life expectancy at birth, in Afghanistan, is 40 years; the death rate being 22 per thousand for the sedentary population. Although 33 per cent of the population marry before age 20 it is noteworthy that approximately 58 per cent of the total population are single, while only 39 per cent are married. Further statistics are shown in the table below.

Table showing rates of birth, infant mortality and natural population growth; urban and rural sedentary population: 1979

	Birth rate	Infant mortality	Population growth per cent
	per thousand		
Total	48	182	2.6
Urban	40	130	2.18
Rural	50	195	2.65

Background

Population education as an organized programme in the non-formal education sector began in Afghanistan with the initiation of a Unesco/UNFPA supported project–Family Health and Adult Education. The project aimed to integrate family health and family life education, including environmental education with the functional literacy materials of the General Agency for Literacy Campaign (GALC), Ministry of Education. Its largest audience was adult rural women.

Illiteracy among rural women is very high in Afghanistan, especially in rural communities and its eradication is one of the main goals of the government. This problem was not given enough attention by previous governments so a massive nation-wide literacy programme was carried out. It was therefore considered crucial for family life education and population education to be included as integral parts of the literacy programme of the Ministry of Education.

The project was carried out over a 30-month period in 26 experimental classes in the province of Kohdaman, Shakardara, and the neighbouring subdistricts of Kabul. The total enrolment was 479 women. The programme consisted of 12 sequential units which could be completed in approximately 17 to 18 weeks. As part of the project three follow-up booklets on population education-related topics were prepared. These are on family health, family guidance and family budget designed for the complementary education programmes of GALC.

Population education in the six programmes of GALC

In 1978, a new project was proposed for UNFPA funding. Called the Family Health and Family Life Education through Mass Education Programme it was planned to integrate population education in all the six educational programmes of GALC. These programmes are: (1) General literacy programme; (2) Women's programme; (3) Agriculture and cooperative programme; (4) Complementary education programme; (5) Out-of-school children programme; and (6) Follow-up materials programme.

General literacy programme. This programme is meant for all illiterates–whether they be in cities or rural areas, men or women, workers or farmers, children or adults.

Women's programme. The project Family Health and Adult Education was lodged in this programme. It was prepared especially for women because the previous governments did not give due attention to their needs. In the past women have been confined to their homes–deprived of education and the right to participate in social and political affairs.

Agriculture and co-operative programme. This is another literacy programme which uses agriculture and co-operatives as the entry point. The main targets of the programme are farmers and peasants.

Complementary education programme. This programme is intended for (1) those women who have completed the general literacy programmes; and (2) those students who, for one reason or another, are unable to continue in the formal education system.

Out-of-school children programme. This is otherwise known as the 'primary school equivalence programme for out-of-school children in the age group 9 to 14'. The main objectives are (1) to provide out-of-school children access to primary education taking into consideration their social economic and cultural circumstances; (2) to offer a programme sufficiently flexible in organization, but conforming as closely to formal education as possible so as to ensure equivalence and transfer; and (3) to enable these children to enter the formal stream at appropriate points so as to facilitate their further education through formal channels.

Follow-up materials programme. The targets of these materials are those graduates of literacy classes who cannot possibly attend the complementary education classes nor the formal education system. The materials are largely of the self-learning type. The materials serve at least three main purposes, namely:

1. To prevent the new literates from reverting to illiteracy;
2. To provide much needed educational materials for coping with and solving problems of daily life; and
3. To provide technical knowledge about their occupations.

Population education content is in the process of being integrated in all these programmes.

Definition and goal of population education

The first national seminar on population education was organized in Kabul, Afghanistan from 1 to 6 September 1979. Seventeen government and semi-government agencies involved in population-related activities participated in the seminar. Among other things the seminar arrived at a definition and goal of population education. (This was subsequently refined in the Population Education Workshop organized in Kabul, from 3 to 14 April 1982). The definition and goal are as follows:

> **Definition.** Population education is an educational programme which provides for a study of the population situation affecting the ways of life of the individual, the family, community and the nation.

Goal. To provide the young and adults with a knowledge and understanding of population dynamics (change), the causes and consequences of population growth and the impact of population change/growth on aspects of quality of life such as health, housing, environment, food and nutrition, clothing, education, employment and social services.

Development of national expertise

There are now about 26 key personnel in the Ministry of Education, who have participated in regional seminars, workshops and training programmes organized by the Unesco Regional Office for Education in Asia and the Pacific. In addition, key personnel involved in population education in Afghanistan went on study tours in India, Cuba, Somalia, and the Socialist Republic of Viet Nam. Nearly 200 teachers, supervisors and curriculum designers received intensive on-the-job training through the projects. The Population Education Workshop organized in Kabul from 3-4 April 1982 provided intensive training on the methodology of integrating the population education content in the six programmes of GALC to 35 key personnel involved in population education in Afghanistan. Furthermore, two national officials from the Ministry of Education were sent to study for a masters degree in non-formal education cum population education in the United States of America.

Conclusion

In the socio-cultural context of Afghanistan the concept and the approach to population education ought to be carefully defined. While the damage to maternal health or infant well-being by too frequent childbirth is recognized, limiting family size through family planning is not a national priority at present. Family planning services are not, therefore, over-publicized and overtly offered. Population education for the present can, therefore, only attempt to create awareness of the consequences of unplanned families in an indirect way, through education for better health, nutrition, environmental balance and improving the quality of life of the people.

The definition and goal, as well as the approach–integrating population concepts in the six programmes of GALC–are in line with the cultural values of people in Afghanistan.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

BANGLADESH

by Muhammad Abdul Mannan

Introduction

Bangladesh is one of the poorest countries in Asia. The large population of 90 million is not sustained at minimum nutritional levels and the rapid population growth is affecting every development effort, making prospects bleak for the next two decades.

One of the most important aspects of coping with the massive and rapidly expanding population is to develop a strong system of Information, Education and Motivation (IEM). Until people know and understand that there is a population problem and that it affects the quality of life at all levels—family, community and nation, they cannot take steps to deal with the problem. Thus IEM plays a very crucial role especially in a country with 75 per cent illiteracy. Within this field the Government of the People's Republic of Bangladesh has strongly emphasized population education in the formal school system. Although not all children enrol in school, at least those who do are going to grow up well informed about the problem. As future leaders will be drawn from among the educated children of this generation, the population education programme ensures their knowledge in this field. Moreover, many non-formal programmes also include population education in their instruction.

Table 1. Population characteristics of Bangladesh

Total population	87,052,000[1]
Male	44,850,000
Female	42,202,000
Sex ratio (males against 100 females)	106
Number of households	15,135,000
Average size of household	5.75
Density per sq. mile (including river area)	1,566
Density per sq. mile (excluding river area)	1,675
Per capita availability of land (in acres)	0.35
Annual growth rate	2.36%
Death rate	16.75

1. Adjusted population 89,940,000

Source: Preliminary report on Population Census, BBS, June 1981.

By the year 2000 it is estimated that the population will reach 127 million if Net Reproduction Rate (NRR) = 1 is reached by 1990. If the present growth rate of 2.36 per cent remains constant, then the population will double by 2010. Given the present poor levels of nutrition, health services, employment and per capita availability of land, the future scenario is grim unless the growth rate is rapidly reduced to one or lower.

National goals with respect to population

From the inception of Bangladesh in 1971, the government has recognized the urgency of the population problem. It was declared as the number one problem and the First Five Year Plan (1973–78) of Bangladesh stated that no civilized measure would be too drastic to keep the population of Bangladesh on the smaller side of 15 crores (150 million) for the sheer ecological viability of the nation. These sentiments were echoed by the Second Five Year Plan, 1980–1985, and a stated aim is to achieve an NRR = 1 by 1990.

The use of direct and indirect measures of fertility control to reduce the growth rate has been espoused by the government. Under the IEM heading comes the Introduction of Population Education in the Formal School System of Bangladesh, funded by UNFPA since 1976. The First Five Year Plan suggested that:

> The first task is to launch a major educational and motivational campaign to bring the seriousness of the population problem into public focus and to set in motion group discussion on this problem at all conceivable levels in village *panchayets* (councils), factories, schools and colleges.

In this respect the role of the Ministry of Education was described as follows: '. . . Ministry of Education will introduce population education in curricula of educational institutions at all levels and in the programme of adult education'. The Ministry of Education, therefore, decided to launch a National Population Education Programme and accordingly, a scheme for the introduction of population education in the formal school system was prepared. The programme in Population Education began in 1976 and will conclude in 1985. By 1985, population education will have been introduced into the formal education system from grade IV to grade XII.

Goals and objectives of the population education programme

For the in-school programme, population education was viewed as essentially an educational programme with the specific purpose of providing knowledge and developing understanding of past and present population situations as well as possible future trends of the entire range of population processes, characteristics, causes and consequences at both the macro and micro levels and to assist the learners in developing meaningful criteria for decision making as an individual and also as a member of the larger community.

Long-range objectives

1. Through multi-sectoral programmes like the Population Education Programme of the Ministry of Education, the efforts of making population control and the family planning programme an integral component of total social mobilization and national development efforts will be facilitated.

2. Through the population education programme in schools an endeavour will be made to produce informed and socially responsible citizens so that their behaviour pattern conforms to rational decisions about population issues in their personal family, community and social life.

3. The programme is expected to have a multiplier effect. As most of the teachers and students live and work in rural areas of the country, they should be ready receivers of population control programmes of other organizations and agencies and should play a leadership role in influencing people in favour of the population planning programme.

4. To institutionalize population education in the formal school system as well as in teacher training institutions.

Immediate objectives 1980–85

1. Introduce population education in grades IX–X through supplementary teaching/learning materials.
2. Provide orientation programme for students of Men's and Women's Colleges through extension lectures.
3. Develop sample teaching/learning materials for *madrasahs* (religious educational institutions) and vocational institutions.
4. Provide face to face training to 67,000 teachers of primary, secondary and tertiary levels including teachers of Madrasahs, Vocational, Commercial and Technical Institutions.
5. Develop an audio-visual kit for use in the pre-service and in-service training of teachers.
6. Develop resource materials such as a Sociological Almanac and National Source Book for the use of educators and teachers.

7. Produce three issues of the population education bulletin to keep teachers and educators abreast of the developments in population education.
8. Organize radio and television programmes to strengthen the population education programme in the formal education system.
9. Undertake an evaluation of the materials used in the training programme as well as the implementation of the population education programme at various levels.
10. Undertake a longitudinal study of the impact of population education on the students of secondary schools.
11. Assist in the development of population education materials for the adult education programme.
12. Develop special materials for the students of female institutions of grade XI and above.

Strategies

Bangladesh is divided into 20 main administrative units called districts. The programme has its headquarters at the national capital with field officers in each of the 20 districts. The major portion of all training activities is carried out at the district level with workshops being held in the district headquarters and in all the *thanas* of the country. (A district is divided into many smaller administrative units called *thanas*). All planning, co-ordination, materials development, publications, evaluation and research is carried on at the national headquarters in Dacca.

Curriculum and materials development. Initially a curriculum in population education was developed for grades IV–XII. Based on this curriculum, population education contents have been developed for Bengali, mathematics, environmental studies and social science for grades IV–VII. These contents have been printed in the respective textbooks. Contents for grade VIII have been submitted to the Text Book Board and will be printed in the new 1982 textbooks. Other contents for higher classes are under development and will be fully incorporated by 1984 up to grade X.

In 1976, population education in the formal school system was initially started in Bangladesh and the programme developed its own materials for teacher training consisting of charts, pictures, diagrams and maps. Additionally, two training booklets were written and published. A training manual was developed for primary school teachers, and a training module was developed for secondary school and college teachers. All trainees received a copy of either the module or the manual. Both types of training booklet contain information on the world population situation from a historical perspective; on the basic demographic concepts and information; on the social and economic consequences of unchecked population growth and on population education. These booklets have been revised and reprinted several times.

In 1982 the programme is producing its own audio-visual (AV) set. Each District Population Education Officer (DPEO) has received a screen, slide projector and cassette player. The slides and tapes the programme is producing will be used by the DPEOs in all training sessions.

A *National Source Book* on population education has been published for distribution to educational institutions in the country. A short reference book, *A Sociological Almanac*, is being produced in 1982 with emphasis on the consequences of a rapid rate of fertility.

Considering the special problems faced by female students, many of whom will be married on completion of their studies, special materials addressing their particular concerns are being developed for students of female institutions at grade XI and above. Also, the Technical, Commercial and Vocational Institutions will be incorporating elements of population education into their training materials. The work of preparing these materials is going on now. The development of materials for *madrasah* teachers' training is also underway.

Training. Since the inception of the Population Education Programme, about 50,000 teachers have been trained at various levels. Initially the programme trained some principals of colleges, headmasters of high schools, education officers and administrators to act as key personnel. These individuals, scattered all over the country, now act as resource persons at the training sessions along with the DPEOs.

Training for primary school teachers is held at the *thana* level. This is the lowest administrative unit in the country. All 473 *thanas* of the country will have been covered by the end of the programme, and about 68 per cent of all primary teachers will have received training either through the programme's special workshops or through in-service and pre-service training programmes.

Training for secondary school teachers is held at the district headquarters. By the end of the programme one or more teachers from each secondary school in the country will have received training on population education. There will be a total of almost 18,000 secondary school teachers who will have received training by 1985.

National level workshops are held in Dacca where mainly natural science and social science college teachers are trained in population education. The week-long course is informative, and by the end of it the teachers are appreciating that a new viewpoint has been given to them. Up to 30 September 1981, 44,381 teachers had been trained by the programme at these three levels of primary, secondary and tertiary level workshops.

During the second phase of the project, 1980-85, training will be given to about 6,000 teachers of the various levels of *madrasah* (religious) schools. These schools play a significant role in the country's educational scheme and their students will be using the same general textbook in which population education has been incorporated, as the students of the formal school system. Hence there is a need to train the *madrasah* teachers also.

In addition to this, population education has been incorporated in the syllabus of all teacher training institutes in the country. All 50 Primary Training Institutes, 10 Teacher Training Colleges (for secondary school teachers) and the higher level national institutes now teach population education as an integral part of their training course. When the programme's AV set is finalized, all these training institutions will receive a set in order to enhance the teaching of population education concepts.

Training modalities. Face-to-face training for all levels of teachers (primary, secondary and tertiary levels) through training workshops are arranged. Lecture, discussion and problem solving are some of the methodologies used. Training modules and manuals, graphs, charts, and diagrams are widely used. Field trips are arranged and film and slide shows are organized to supplement classroom lectures. Exercises on the preparation of lesson plans and write up are arranged for the teacher trainees. Mass media are used for teachers and the general public.

Evaluation and research. This has been an integral component of the project from its inception. Six research studies have been published up to December 1981. They are:

1. A study of knowledge in and attitude towards population education and practice of family planning of teachers.
2. Evaluation of knowledge base and change in knowledge of the students of classes IV and V in population education.
3. Evaluation of different aspects of population education curriculum for Teachers' Training Colleges in Bangladesh.
4. Evaluation of training workshop of different level of teachers.
5. A study of knowledge in and attitude towards population problems, issues and population education of different level of students.

6. Evaluation of bulletin effectiveness.

Ongoing research at this time is a Knowledge, Attitude and Practice (KAP) study of *madrasah* teachers, a longitudinal study on population education impact and a workshop evaluation study. Highlights of the research so far conducted show that the training programmes are successful in their aim to impart knowledge and understanding about the population problem. Moreover, the majority of participants return to their schools and communities and spread the ideas and knowledge they have learned in the workshops.

Among the various categories of teachers, primary school teachers were revealed as those who had least knowledge of population concerns, and they had the largest family size. College level teachers were best informed and they had the smallest families. Thus the programme's emphasis on primary teacher training correctly reaches the largest and least informed segment of the teachers.

Documentation and publication. As there was a dearth of materials on population education in 1976 when the programme started, publication of such materials has been a vital part of the programme and will continue to be so. A regular feature from the publication division is the *Population Education Bulletin.* This Bulletin is published three times a year and it is intended to keep teachers and administrators up to date with respect to population facts and issues and with respect to population education itself.

All the materials prepared by the programme—charts, diagrams, maps, graphs, training modules, training manuals, brochures, guides and so on are published by the documentation and publication division. Up to now 60,000 training manuals, 20,000 training modules, and 665,000 copies of the Bulletin have been published. There are also numerous charts, diagrams and maps. In addition, research reports, the *National Source Book,* teachers' guides, evaluation materials and booklets have been published. It is the responsibility of this division to maintain the library, highlight information about activities of the programme both in the country and abroad, and thus keep close liaison with the various media. The Population Education Programme maintains a mobile library which contains almost all publications in population education particularly the reference books and important journals.

The main library located at the Dacca Head Office is meant for officers and staff of the Population Education Programme. Persons of other organizations, related to population education, general education institutions and family planning organizations can also use the library. It is open for any one who would like to consult the library or wants any publication of the programme. The library procures and purchases books. It has a collection of 1,250 titles and 11,465 accessions. It receives foreign books and publications, while daily newspapers, weeklies and periodicals are also received for the programme personnel.

There are various types of books in the library namely:

a) Textbooks published by the Bangladesh School Text Book Board; and
b) Books on population education, demography, economics, civics, political science, physics, chemistry, history, geography, statistics, literature, and religion.

The largest and main collection in the library consists of training materials for teacher training including manuals for primary teachers and modules with supporting materials for secondary and college teachers. Dispatch of the training materials to the DPEO for distribution among the participants is one of the main functions of the library. The library keeps regular correspondence with the DPEOs and sends them the materials they request. It arranges displays of books and other publications at the national workshops held in Dacca for college teachers. The library acts as the clearing house of the programme and keeps records of activities of the programme and other programmes related to population and population education published in the newspapers. The library prepares press releases, highlights the activities of the programme and sends them to the mass media organizations (Public Information Department, Radio/TV, News Agencies) for publicity of the workshops and activities of the programme. Film shows related to population and population education are also arranged for trainees.

National bibliography. Preparation of the National Bibliography for Bangladesh on Population Education has been undertaken by the programme. The contract for the work was entrusted to an associate professor of the Institute of Education and Research, Dacca University. As per contract, the work was completed in November 1980 according to the guidelines set by the Unesco Regional Office. The National Bibliography is a unique work which is the source for Bangladesh population education literature.

Mobile library. One of the most significant components of the programme is the mobile library. The mobile library is primarily aimed at stimulating the flow of materials within the country, specifically to serve the information needs of the educational institutions. The mobile library is in the form of a box containing three packages of highly selected materials catalogued and classified according to the following categories: (a) basic theories, principles, concepts and methodologies of population education; (b) demographic references and population dynamics and policies; (c) actual curriculum and teaching/learning materials; (d) research and evaluation of population education. The box is given to the Population Education Office of the DPEO who is the programme co-ordinator-in-charge to see that the mobile library is loaned to each library and educational institution in the district over a period of one or two months. He is responsible for providing transport to ensure mobility from one point to another.

The mobile library was received by the Population Education Programme Head Office in 1980 and was then sent to Khulna Teachers' Training College for display. During the one month stay of the mobile library at the college the borrowers included teachers, principals, supervisors, headmasters and trainees.

Sources of information about the existence of the mobile library were announcements by radio, newspapers and the inaugural function. There was a demand for more libraries of this kind. The users borrowed the books for use as teaching aids in the classroom, developing lesson plans, completing homework or assignments, training materials and general reference. Types of assistance given to the users include leading them to consult the card catalogue and bibliography to enable them to do literature research and refer to other sources of information. They wanted the number of publications to be increased. There was also demand for teaching aids, photocopies of some materials and books on health education, nutrition and family life education. There was also a request to lengthen the stay of the Mobile Library to at least two months.

From the Khulna Teachers' Training College the Mobile Library was lent out to the Primary Teacher Training Institutes, Khulna, the Primary Teacher Training Institute (PTTI), Satkhira, and the PTTI Bagerhat. Thus it has completed a full rotation in the Khulna District and will be carried to one of the adjacent districts.

The Mobile Library is a unique media for information and education. But of late there have been monetary constraints due to a reduction in the budget. This has also affected the smooth functioning of the mobile library as its mobility is limited due to a shortage of fuel and transport.

Linkage with other programmes and institutions

Linkage is maintained through the Population Control and Family Planning Division (PCFPD) of the Government of the People's Republic of

Bangladesh. The Population Education Programme also has linkage at various levels with the following institutions:

a) National Institute of Population Research and Training (NIPORT);
b) Information, Education and Motivation (IEM) of the Population Control and Family Planning Division;
c) Institute of Education and Research, Dacca University;
d) Bangladesh Education Extension and Research Institute (BEERI);
e) Teachers' Training College;
f) Bangladesh Institute of Development Studies (BIDS);
g) Ministry of Information;
h) Bangladesh Bureau of Educational Information and Statistics (BANBEIS);
i) Bangladesh School Text Book Board;
j) Board of Intermediate and Secondary Education;
k) Technical Education Board;
l) Bangladesh Family Planning Association; and
m) National Curriculum Development Centre.

Accomplishment with reference to national goals and objectives

The Population Education Programme has gone a long way towards achieving its objectives. These objectives were framed with direct reference to the overall national goals and policies. The Population Education Programme pays a significant role in fulfilling national goals. By incorporation of population education content in the textbooks of the school system, the programme ensures that every educated child who has been exposed to the formal school system is aware that Bangladesh, along with all the nations of the world, has a population problem.

What the child learns in school will be reinforced by other messages outside the school system. As IEM improves in society as a whole and as more and more family planning facilities become available, the educated adult is going to opt for a small completed family size. In that decision, population education will have played a significant role.

Innovative experiences

In developing the population education curricula, the procedure adopted was first to review the existing curricula and course content of the various subjects in grades IV-XII and identify the population content already in existence so that it could be determined which subjects were most appropriate for the integration of population education. The second exercise was to identify the broad areas from the population field for developing population education curricula for various subject areas like science, social science, mathematics and language. The Curriculum Committee was then divided into several groups according to their subject specialization. When the respective groups developed curricula for a particular subject area, the Committee in its full session reviewed, examined and finalized the curricula. The finalized curricula were then submitted to National Curriculum and Syllabus Committee (NCSC) for integration in the respective subjects of grades IV-XII.

Population education curricula for grades IV-XII have been developed and included in the new curricula prepared for the school system by the National Curriculum and Syllabus Committee. At the primary stage (grades IV-V) the integration of population education has been done in subjects like Bengali, mathematics, environmental studies (social) and environmental studies (science). At the lower secondary stage grades VI, VII, VIII) subjects like Bengali, mathematics, social science, general science, home economics and work oriented education (social welfare) have been chosen for the integration of population education. At the secondary stage (grades IX-X) the integration has taken place in subjects like Bengali, mathematics, general science (biology), civics, geography, economics and home economics. At the higher secondary stage, (grades XI, XIII) the integration has been done in courses like Bengali, mathematics (statistics), biology, sociology, social welfare and agriculture, economics, civics and home economics.

The new curricula prepared by the NCSC for primary and secondary stages were approved by the government and accordingly new textbooks were written and introduced. The instructional materials (contents in population education) for different subjects of grades IV, V, VI and VII were developed by Population Education Programme personnel and by specialists and were handed over to the Text Book Board for inclusion in the new textbooks. The new textbooks comprising population education content for grades IV and V were introduced for grade VI in 1980 and for grade VII in 1981. New textbooks comprising population education content for grade VIII were introduced in January 1982, and those for grade IX are to be introduced in 1983.

A population education orientation programme has been started in the colleges (higher secondary and degree level) where suitable materials have been developed for the purpose.

So far as population education curricula for technical and vocational education are concerned, four sub-committees (polytechnic, monotechnic commercial and vocational were formed including members from PEP and specialists in the respective areas. The curricula have been developed and students materials will be started as soon as the curricula is approved by the Technical Education Board.

Another very crucial component is the development of materials for *madrasah* education. As *madrasahs* are religious institutions, with most of the people having conservative attitudes a very cautious approach has to be taken in developing the materials. The process has just been started.

Population education has also been introduced in the pre-service teacher training programmes. Population education is taught as a part of the course in the Primary Teacher Training Institutions, Teacher Training Colleges and the College of Technical Education.

The introduction of population education in the formal school system called for a nationwide programme of curricular renovation in Bangladesh. Development of population education curricula and contents for different subjects called for a co-operative effort of the experts and specialists from different fields.

An innovative aspect of the curricula through the inclusion of population education is its emphasis on the quality of life which leads the students to think about past, present and future. In other words, population education has given the curricula a future directive which is a new concept. The innovative aspect of the programme is that it creates awareness among the teachers and students and through them among the teeming millions which ultimately helps improve the quality of life of all.

Further renovation in curricula and teaching methods brought about by population education include teaching through modules, the use of AV kits, emphasis on problem solving methods or problem centred discussion, learner centred teaching, debates and teaching through posters.

Population education in the non-formal sector

Multi Sectoral Programmes are mostly devoted to non-formal population education in Bangladesh.

In the non-formal education programmes the specific objectives are:

1. To motivate people towards population planning; and
2. To encourage active participation in the developmental activities.

In the non-formal programmes, as also in the formal, population education is viewed as an integral part of total developmental activities.

In Bangladesh 16 different ministries and divisions other than the Ministry of Education are offering non-formal population education programmes. These are the:

1. Ministry of Health and Population Control;
2. Ministry of Manpower Development and Social Welfare;
3. Ministry of Women's Affairs;
4. Ministry of Planning;
5. Ministry of Agriculture and Forests;
6. Ministry of Labour and Industrial Welfare;
7. Ministry of Local Government, Rural Development and Co-operatives;
8. Ministry of Information and Broadcasting;
9. Ministry of Food;
10. Establishment Division;
11. Ministry of Industries;
12. Ministry of Land Administration and Land Reforms;
13. Ministry of Commerce;
14. Ministry of Telephone and Telegraph and Postal Department;
15. Ministry of Railways, Roads, Highways and Road Transport; and
16. Ministry of Civil Aviation and Tourism.

Besides the Ministries, a large number of voluntary organizations are also engaged in population activities.

Impact on target audiences

Population education as a discipline has been designed to impart the understanding of the consequences of population growth, its past and future and its impact on the whole eco-system. Initially there was a little misunderstanding among the teachers, students and guardians about the nature of population education. It was thought to be a euphemism for family planning and a portion of the teachers and guardians along with the students put forward objections on its introduction in the schools.

However, in due course, on the implementation of the project, the resistance has faded away. The Population Education Programme during the last five years has trained about 44,000 teachers and other workers from different levels, published different audio-visual materials on the subject and finally introduced the subject in different textbooks (up to grade VIII). The above achievements of the programme actually generated a favourable reaction among the target audience. Teachers have admitted the importance of the discipline for the nation and along with this they have developed a favourable attitude towards the population issues and population education. The changes have been brought about through the wide implementation of different workshops. The school-going children have also gained a considerable amount of knowledge on population issues and population education through their textbooks.

From research done so far by the Population Education Programme it appears that there is a strong impact of population education on target audiences. Most of them welcome the subject; it is an entirely new topic to them and their interest is aroused by it. There is often a strong indirect impact as teachers return to their schools and communities and inform colleagues, family and friends of their new knowledge and ideas. Many teachers state that the training sessions helped them in their own personal life. Many reported that when they returned to their school they immediately taught their classes about the population situation.

It is assumed that non-formal programmes also have a strong impact. These programmes, together with the continuing IEM activities of the government, the wide coverage of population news and the coverage of population related subjects in the newspapers and journals, are contributing to the ever increasing awareness of the Bangladeshi people to the world-wide and national consequences of unchecked fertility.

Problems faced and strategies to overcome them

Some of the problems faced by the Population Education Programme in running programme activities are: (1) shortage of personnel; and (2) poor participation in the training workshops.

As many of the Population Education Programme staff came on deputation from the Education Department, a vaccuum has been created when some of them have been transferred elsewhere on promotion. Moreover, some of the new officers and employees who had a fresh appointment in the programme, left the programme and joined somewhere else having better prospects. This has made it difficult to carry on the programme activities efficiently.

Approaches have been made to the Education Directorate and to the Ministry of Education to fill up the vacant posts. According to the instruction of the Ministry of Education, steps have been taken for direct appointment to some of the posts through selection after interview.

Poor attendances at the training workshops in some areas of the country stand in the way of reaching the scheduled target. Information is being collected from teachers to find out the causes of this poor response. Approaches have also been made to the Director of Public Instruction to issue directives to the schools about regularly sending teachers to the workshops.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

CHINA

by Sun Dongtang

China has the largest population in the world; a population that is characterized by rapid growth, a broad base and a predominance of youth. The population question is a major issue that concerns the speed of modernization as well as the prosperity of the Chinese nation. Attaching great importance to the population question, the government has over the years taken a series of effective measures to formulate a set of population policies and principles relevant to the specific circumstances of China so as to give the population question a proper step by step solution. In the early 70s the importance that the Chinese Government attached to the question of population was already reflected in the schools. It was during this period that Chairman Mao Zedong referred to the need to bring population growth under control and Premier Zhou Enlai proposed that young people be given lessons on hygiene during puberty. Their instructions started attempts at planned population education in secondary schools. Knowledge of hygiene during puberty was incorporated into physiology and hygiene for lower secondary schools, and lectures on late marriage and family planning were added to the curriculum for upper secondary schools. Formal provision was stipulated in 1978 in the Curriculum for the Ten-year Full-time Primary and Secondary Schools (for trial implementation) which had been developed under the guidance of the Ministry of Education. In 1980 a project agreement was signed between the Chinese Government and the United Nations Fund for Population Activities (UNFPA) on population education in secondary schools and teachers training in the People's Republic of China.

Population education in secondary schools

The 1978 curriculum provided that physiology and hygiene in the lower secondary schools should include knowledge of physiology and hygiene during puberty, and that education on late marriage and family planning should be given through lectures in upper secondary schools. Based on the 1978 curriculum, related teaching materials were developed by the People's Educational Press.

In 1980, a survey was undertaken by the First Department of General Education in the Ministry of Education to study the effectiveness of these two elements of the 1978 curriculum. As a result of the experiences recounted during this survey it was suggested that the programme should be revised and improved. On 19 May 1980, the Ministry of Education issued a circular to all the provincial departments of education which pointed out that in view of the paramount importance of the population question it was necessary to provide education on population theory and control of population growth at the secondary school level. In the light of the circumstances attending the start of lectures on late marriage and family planning and proposals made by various provincial/municipal departments of education, it was decided that beginning with the new school year 1981/1982 they would be replaced in the curriculum by lectures on population education.

On 14 April 1981, the Ministry of Education issued the Curriculum for the Six-year Full-time Key Secondary Schools (for trial implementation) which made it a formal provision that population education would be given in the form of lectures in the second term of the third year in upper secondary schools, and that population education would also be incorporated into physiology, biology, geography and other related subjects.

Teaching materials for population education in secondary schools: their development and contents

In accordance with the provision of the 1978 curriculum, the People's Educational Press developed a physiology and hygiene textbook for use in lower secondary schools and a text, *Lectures on late marriage and family planning* for use in upper secondary schools. Based on the changes outlined in the circular issued by the Ministry of Education in 1980 the People's Educational Press developed a textbook entitled *Lectures on population education* to be used in upper secondary schools. The book was revised in the light of the provision made in the 1981 curriculum as well as feedback from the population education pilot projects in secondary schools. The revised edition was published as the second edition of the book. In the meantime, another book, *Population education,* to be used in full-time secondary schools, was also developed by the People's Educational Press. More substantial in content, the book consists of eight chapters which are summarized as follows:

Chapter I. Basic Marxist views on population theory. Social production is the integration of material production and human production. Demographic laws are determined by the mode of production of a given society. Population either promotes or delays social development.

Chapter II. Population growth and ecological equilibrium. The ecosystem is the source and cradle of genesis and growth of mankind. Population growth must be based on the stable defraying power of the ecosystem.

Chapter III. Survey of world population. World population, its distribution and growth. Rapid growth of urban population. International migration.

Chapter IV. Survey of population in China. Population in China, its growth, distribution and characteristics. Causes of the rapid growth.

Chapter V. Control of population growth, an important condition for the realization of modernization in China. Overgrowth hampers accumulation of funds, hinders upgrading of people's scientific and cultural levels, affects population quality, adds to difficulty in employment and impedes improvement of people's living standards. Related questions regarding control of population growth.

Chapter VI. Target for control of population growth in China and specific requirements. Target: keep the population of China under 1,200 million by the end of this century. Specific requirements: late marriage, late child-bearing, fewer children (one couple with one child to be encouraged) and production of better offspring.

Chapter VII. Principles of birth control.

Chapter VIII. Population projection and planning. Contents and methodology of population projection. Significance and contents of population planning.

Besides being a separate subject in the curriculum in secondary schools as mentioned above, population education in secondary schools is also integrated with related subjects such as physiology and hygiene, biology and geography.

Pilot projects of population education in secondary schools in China

Population education is an emerging subject in the secondary school curriculum but there is not much previous experience on which it can be based. As there are a considerable number of secondary schools it is difficult to start the population education programme in all secondary schools at one time so far as trained teachers, teaching materials and equipment are concerned. The Ministry of Education decided that a pilot project of population education should be started in a small number of schools in some provinces/municipalities before population education could be extended to all secondary schools step by step. Ten pedagogical institutes at provincial/municipal levels and ten secondary schools were chosen for the pilot projects of population education in secondary schools and teacher training for population education. In May 1980 the Ministry of Education issued a circular to ten provincial/municipal departments of education (Beijing, Shanghai, Jiangsu, Shandong, Hunan, Sichuan, Henan, Hebei, Liaoning, Shenxi) fixing the ten pedagogical institutes and ten secondary schools for the pilot projects. The ten pedagogical institutes are the Beijing Pedagogical Institute; Shanghai Pedagogical Institute; Jiangsu Pedagogical Institute; Shandong Pedagogical Institute; Hunan Pedagogical Institute; Henan Pedagogical Institute; Sichuan Pedagogical Institute; Hebei Pedagogical Institute; Shenxi Pedagogical Institute; and Liaoning Pedagogical Institute. The ten secondary schools are Beijing No. 15 Secondary School; Shixi Secondary School in Shanghai; Yangzhou Secondary School in Yangzhou, Jiangsu Province; Taian No. 1 Secondary School in Taian County, Shandong Province; Hengyang No. 6 Secondary School in Hengyang, Hunan Province; Henan Experimental Secondary School in Zhengzhou, Henan Province; Changli No. 1 Secondary School in Changli County, Hebei Province; Weiqu No. 1 Secondary School in Changan County, Shenxi Province; Haicheng Upper Secondary School, Haicheng County, Liaoning Province; and Xindu Secondary School in Xindu County, Sichuan Province.

In the past year or so, a great deal has been done by the ten pedagogical institutes and ten secondary schools in connection with institutional arrangements, teacher training and the development of teaching material. The pilot projects have been proceeding smoothly. A population education teaching and research section has been set up in each of the ten pedagogical institutes. Up till December 1981, 59 teachers training courses for population education in secondary schools had been run and 4,945 teachers had been trained so that the first batch of population education teachers are now teaching the subject. The ten pedagogical institutes have also jointly developed a book for teacher training entitled *Essentials of demography*. The book is expected to be published during this year. In each of the ten secondary schools, there is a population education teaching and research group. To improve teaching, the pilot institutes and secondary schools developed their own posters, charts and reference materials.

Since the time that population education was started in the pilot schools there has been very favourable reaction from teachers, students and parents. In the provinces and municipalities where the pilot institutes and schools are located, population education is being extended to other secondary schools. Provincial departments of education of Jiangsu,

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Liaoning and Henan provinces, for example, have issued circulars for population education to be extended to all secondary schools.

To guide the pilot projects, a working conference on population education in secondary schools was held by the First Department of General Education in the Ministry of Education between 5-11 December 1980 in Nanjing, Kiangsu Province. Then between 8-14 December 1981 a national seminar for sharing experiences in population education in secondary schools was held in Hengyang, Hunan Province. On both occasions the significance of population education and the necessity to have the subject taught in secondary schools was fully acknowledged and the achievements of the pilot projects were fully confirmed.

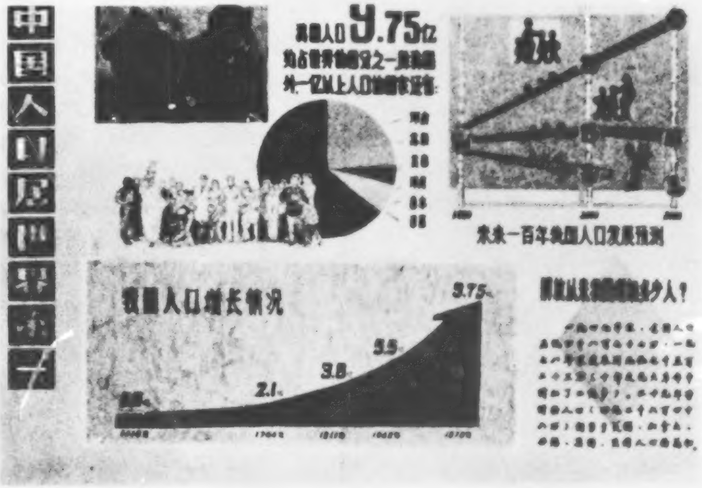
It was the view of all the participants of the two meetings that population education in secondary schools contributes towards the all-round moral, intellectual and physical development of young people. In the first place, their knowledge of science can be extended and a proper understanding of demographic laws will help young students in many ways in their future life whether they continue their education in colleges and universities or join the working world after they finish school. In the second place with a knowledge of population theory, young people will be able to properly comprehend national policies and principles in connection with population and follow them of their own accord. In the third place, a knowledge of physiology and hygiene during puberty will help young people to develop and grow in a healthy way. It was also the view of the participants that population education covers a wide range of content and cuts across many disciplines in the social and the natural sciences. If population education is to serve the needs of the overall policy of controlling population growth in China, it should not be limited to family planning. The seminar participants agreed that lectures on late marriage and family planning should be replaced with lectures on population education in upper secondary schools. So far as curricular provision is concerned, it is deemed practical to have population education as a separate subject in secondary schools and in the meantime integrate it with biology, geography and political studies. As for forms of instruction, apart from formal classroom teaching there can also be extra-curricular activities such as slides or film show publicity corners, exhibition rooms, social investigations and so on.

Conclusion

Since the population education programme started in secondary schools, besides relying on our own efforts, we have also benefited from the experiences of other countries which we have been able to emulate through international exchanges with the help of Unesco and other relevant agencies in the United Nations.

The population question has become a major issue in the present-day world. In a country like China that has a vast territory and a large population, population education has a broad basis. It will be of far-reaching significance if population education can be made universal so that people can study and grasp a knowledge of demographic laws.

Population education in secondary schools is just beginning in China. It will take a great deal of work to extend population education to all secondary schools. There is still the problem of how to carry out the population education and the research work on the theories relating to population education, within the school system (primary, secondary and tertiary) and outside the school system. Our responsibility is great and the road is long, but we have very good prospects.



Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

INDIA

by B.S. Parakh

India today finds itself in a most unenviable position with the average density of population being 221 persons per square kilometre—well over 6½ times the world average. It is required to sustain 15.53 per cent of the world population on just 2.4 per cent of the world's land area. The situation it finds itself in is indeed a creation of its own as it has doubled its population in the 34 years since the attainment of Independence.

Demographic situation and characteristics

On 1 March 1981, at sun-rise, the total population of India was 683,810,051. There were 935 females per 1,000 males. This highly unfavourable sex ratio, however, represented a slight improvement over the figure of 930 recorded in the 1971 census. In fact this marks a reversal in the otherwise progressively downward trend seen over several decades, as in 1901 there were 972 females per 1,000 males. This imbalance cannot be easily separated from the broader issue of the status of women. The literacy rate for the total population has registered a growth from 29.45 per cent in 1971 to 36.17 per cent in 1981. The differential figures for males and females are 46.74 per cent and 24.88 per cent respectively. In 1901 the difference between male and female literacy was much more marked—9.8 per cent male and 0.6 per cent female. Although this gap has narrowed considerably, the very slow progress of women's education is still a matter of great concern if there is to be a quick breakthrough in limiting the population growth rate.

The 1981 census shows that over the preceding ten years, the absolute growth of population in India was 135 million. This was greater than the total population of Brazil which is the sixth most populous country in the world with a land area more than two and a half times that of India. The population of India during 1961-71 rose by 24.8 per cent and during the period 1971-81 it maintained almost the same tempo, with an actual growth of 24.75 per cent. It is too early to speculate whether this reduction of 0.05 per cent marks the beginning of a downward trend in the growth rate. During 1921-31 the growth rate was 11 per cent and has risen progressively ever since.

Rapid urbanization of the Indian population is yet another characteristic of the demographic situation in India. The urban population in India today stands at 156 million. This represents a growth rate of 46 per cent over the figure for 1971. In the rural areas, during the same period, the rate was only 19 per cent. There has been an absolute addition of 50 million people in urban areas during the last ten years. While at the turn of this century every ninth person in the country was found to be living in an urban area, today every fourth person is an urbanite. Out of the additional 50 million urban dwellers as many as 34 million are confined to the 'grade I' urban areas defined as cities with a population of 100,000 people and above. The amount of stress and strain this rapid population growth in metropolitan areas must be putting on their meagre civic amenities and public utilities like health care, education and transport can be easily imagined.

A preponderance of young people is as much a characteristic feature of the Indian population as many other economically underdeveloped societies. Forty-two per cent are below 14 years of age implying a high dependency ratio and consequently low per capita incomes and standards of living. In 1981 the work participation rate was 37.55 per cent; a drop of almost 6 per cent from 1961, while the female work participation rate dropped to a discouragingly low 20.85 per cent in 1981 from 27.93 per cent in 1961. This highlights the traditional role of a woman as a manager of the kitchen and children. After excluding main and marginal workers from the total population the absolute number of non-workers in 1981 was found to be 411 million or 62.45 per cent of the total population. The dependency ratio works out at 166:100.

A breakdown of the occupational distribution of the working population shows that India is still a predominantly agricultural country with 66.68 per cent of its labour force engaged in agricultural pursuits and only half that number in the non agricultural sector. This has great significance in predicting any kind of breakthrough in the existing demographic situation in the country. The experience of the developed world tells us that demographic transition is closely related to the rapid expansion of the work-force engaged in secondary and tertiary sectors of the industry. Moreover, nearly equal participation rates of female and male workers in these organized sectors where women work primarily in factories and offices is a pre-requisite for an automatic demographic transition leading to stabilized populations.

Demographic goals and targets

To put the entire demographic situation and the goals which the country has set for itself in a nutshell, the following extract from the *Report of the Working Group on Population Policy* set up by the Government of India, Planning Commission, New Delhi, March 1979, should suffice:

> We strongly recommended that the nation commits itself to achieving the long term goal of a Net Reproduction Rate (NRR) of one by 1996 on an average and by AD 2001 for all states.
>
> The translation from the present estimated level of NRR of 1.67 to 1 by AD 2001 implies that the present family size of 4.2 children will have to be reduced to 2.3 children per couple. This further implies a reduction in death rate from 14 to about 9 and birth rate from 33 to 21. By 2001 the infant mortality would have to come down to 60 from the current figure of 120 per thousand live births.
>
> If we succeed in this task the population of the country would be around 900 million by the turn of century. It would take another 50 years before population size stabilizes because of the age structure of our population. According to present estimates the nation's population would stabilize with a small positive growth around 1,200 million by the year AD 2050.

Population education: a preventive intervention

A restructuring of the national economy and a programme of social transformation were initiated as a systematic and concerted effort with the launching of the first national five year plan in 1951, soon after declaring India a sovereign democratic republic. The process of comprehensive and multi-dimensional development through planned efforts began to bear fruit in the fields of agriculture, irrigation, industry, mineral and power production, transport and communication, health and education. In fact, it was the spectacular success achieved in the improvement of health and nutrition that confronted the country with the problem of a population explosion.

It took quite some time to realize the magnitude and urgency of the population problem, its perennial nature and its complex interrelationships with the total process of development. With each plan, the Government of India increased the tempo of family planning activities by building a network of health and family planning services and offering incentives and disincentives to popularize the concept of a small family norm. While the country had state population policies and programmes since as early as

1952, the need for utilizing education as a societal tool for creating awareness of the problem and modifying social values in regard to family size was not realized until 1969. It was in that year that the first National Seminar on Population Education was jointly organized by the two Union Ministries of Health and Education in Bombay.

The strategies of implementation

The first National Seminar of 1969 unanimously recommended that "population education should be introduced into the curriculum of schools and colleges by including it, insofar as it may be possible, in the areas of study now common in the educational curriculum."

Planning. As a sequel to the recommendation made by the Bombay seminar, the National Council of Educational Research and Training (NCERT) set up a population education cell in its Department of Education in Social Sciences and Humanities. It developed curriculum, instructional materials and textual lessons in population education in selected school subjects and incorporated them in its textbooks. It received feedback from the practising teachers and schools and revised the materials from time to time. It also worked out a model syllabus in population education for teacher training institutes. Some of the materials it developed were translated into regional languages and tried out in schools before being widely circulated. These efforts made at the national level were appreciated. However, there was a wide gap between this developmental effort and its actual extension to schools in the states.

The Population Education Unit in the NCERT with active assistance of the Unesco Regional Office for Education in Asia and the Pacific (ROEAP), Bangkok decided to develop an action plan to bridge this gap. Educational leaders, policy makers in the states and authorities of specialized agencies were contacted by seeking appointments and personal interviews. The level of their interest and readiness to undertake population education was ascertained. Educational infrastructure and local expertise were identified and assessed. An interim preliminary population education plan for a year was drafted and discussed at the highest level where representatives of various central ministries and national agencies in the field of education were present. The Planning Commission of the Government of India was also involved and gave its blessing for NCERT to work out a comprehensive national population education project. The United Nations Funds for Population Activities (UNFPA) at this stage also expressed its interest and willingness to contribute the necessary funds.

Four regional workshops-cum-seminars were organized in 1979. Out of 31 states and Union Territories as many as 26 participated to clarify the concept of population education and decide the broad strategies for introducing suitable population education programmes in the formal education system covering not only the schools but also their teacher training institutes. Each state took stock of the current status of population education in its existing curricula. It decided upon alternate approaches and strategies in the context of their educational infrastructure.

The Population Education Unit undertook a national baseline survey by way of a bench mark study to assess needs, status and required inputs in each state. This preliminary work paved the way for the development of a national population education project (NPEP) for a period of three years to coterminate with the then national five year plan. The project document thus developed with the collaboration of the Unesco ROEAP, Bangkok was discussed with representatives of the concerned Ministries and their specialized national agencies before it was adopted by the Government of India, Ministry of Education and Culture.

The NPEP document established the following long range objectives:

> The primary goal of the project is to gear the entire educational system in the country to the realization of the potential role of education in the developmental efforts of the country, and of interrelationships between population situations and different aspects of the quality of life at the micro and macro levels. The four long-range objectives of the programme are:

1. To help students develop an insight into interrelationships between population growth and the process of social and economic development at the individual, family, society, national and international levels;
2. To make children and teachers aware of the population situation in the country and the targets and efforts of the Government of India in solving this problem;
3. To institutionalize population education in the formal education system, including universities and non-formal education programmes at the national and state levels; and
4. To develop desirable attitudes and behaviour in teachers and students as well as the community at large towards population issues so that they may take rational decisions about their family size and the quality of life that they would like to have.

With the national overall policy and financial framework thus developed at the centre, duly supported in principle by UNFPA and Unesco, the way was open for the states to prepare their detailed project proposals.

This was done, as on one previous occasion, in two workshops—the first for developing a draft project proposal by the state education officials and academics and the second for submission of the final draft by the competent state authorities representing the State Governments. There were only ten states (Bihar, Chandigarh, Gujarat, Haryana, Karnataka, Madhaya Pradesh, Maharashtra, Punjab, Rajasthan and Tamil Nadu) to join the project in its first phase starting on 1 April 1980. They were selected on the basis of their readiness. The state projects thus reflected the desire, readiness and their own perception of the strategies and needed inputs to implement the programmes based on their own needs and conviction.

Implementing the state programmes. The basic assumption on which the entire NPEP rests is the institutionalization of population education in the ongoing school and teacher education curricula. This was perhaps the best available option administratively and financially. It reduced the costs that would have otherwise been incurred had population education been developed as a separate additional subject, calling for separate periods in school time tables, textbooks and the provision of teachers at various grade levels.

This approach, however, called for much more systematic planning and careful thought in identifying population education content, ideas and values and suitably integrating them in various subject areas in a graded manner. Its success depended primarily on close co-ordination at various levels between multiple agencies and departments of educational administration like curriculum or syllabus committees, Textbook Boards and Corporations, Boards of School Education and examining bodies, pre-service and in-service teacher training authorities and supervisory wings of Education Departments.

The State Councils of Educational Research and Training or State Institutes of Education or their equivalent agencies were assigned the task of providing leadership, co-ordinating the work of all agencies and authorities concerned and monitoring the progress of the project in their own states. They were to: (a) prepare a population education curriculum; (b) develop instructional materials for students; (c) devise training packages for teachers, teacher educators and school administrators; (d) undertake orientation and training of these educational functionaries; and (e) monitor the project activities through proper co-ordination and carry out periodic project evaluation. For this purpose a small Population Education Cell was to be set up in each state as soon as it joined the project. The funds were also operated by these cells for various project activities.

One of the additional considerations in placing the responsibility for implementation with these state agencies was that they implemented all other educational projects and were primarily responsible for undertaking most of the in-service training programmes at the state level. Thus it ensured effective linkage with other projects and training programmes, providing for reiteration where necessary and avoidance of duplication and wastage of limited human and financial resources.

Curriculum and materials development. Twin workshops were organized jointly by the NCERT and Unesco in Srinagar and Pune in the second and third weeks of July 1980 for key persons, policy makers and executives responsible for planning, launching and implementing population education projects in the ten states. The workshop recommended:

> The participants of the workshops while appreciating the work already done by the NCERT at the national level are happy to note that the states are at liberty to develop their own curricula and instructional materials keeping in view their own needs and requirements. This is bound to increase the relevance of population education and its functionality. The participants, however, strongly feel that every state should try to ensure that it adopts or adapts the 'national minimum' and suitably incorporates the same in its existing school curricula.

For implementing this policy the following guidelines were suggested:

a) Integration only with a few selected subjects to ensure identifiable chunks of content and to avoid diffusion;

b) Desirability of reinforcement through more than one subject;

c) Utilizing co-curricular activities for conveying the message not only to the students but also to the community at large;

d) Undertaking content analysis of existing curricula and textbooks;

e) Identifying suitable 'plug-points' for incorporating population education ideas and values;

f) Emphasizing and taking recourse to interdisciplinary and multidisciplinary approaches;

g) Preparation of a master chart of population education ideas–horizontally and vertically;

h) Incorporating population education in pre-service teacher training programmes;

i) Inclusion of sex education in teacher training syllabuses;

j) Preparation of suitable lesson plans, learning episodes, capsules and modules or teaching units; and

k) Providing flexibility within a broad curricular framework.

In support of the programme the Population Education Unit in the NCERT has published curriculum development guidelines, draft syllabuses, reference material, resource books, teachers' guides, reports, bibliographies and supplementary readers in population education. [1]

Training strategies and materials development. The Population Education Unit is entrusted with the task of providing intensive training to the full-time staff identified, selected or recruited by the participating states. It organized two such training programmes for the ten states that joined the project in its first phase. The following training activities were organized by the Population Education Cell.

1. A 13 day intensive training programme with a focus on development of curriculum and instructional materials was organized at Osmania University, Hyderabad in November 1980. The training strategy adopted in this programme was to develop a curriculum and support it with teachers' manuals in population education for primary schools. This activity helped to develop insights into the problems and procedures in the development of curriculum and instructional materials.
2. In January 1981, in Bombay, another 12 day workshop-cum-intensive training programme was organized for the same ten states. The participants in this case were those whose responsibility it was to organize training and orientation of teachers, teacher educators, educational administrators, and resource persons at the state level. Here again, the strategy used was that of participatory training. Besides training, the other activities of the workshop were monitoring, evaluation and research.

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[1] NCERT publications on population education include:

Readings in population education (1969)
National Seminar on Population Education: A report. First edition, 1969; Second edition, 1970
Population education in school curricula—A working document, 1970
Population education: A draft syllabus, 1971
National Conference on Population Education: *Problems of implementation*, 1972
Dreams of tomorrow (A Supplementary Reader in Hindi) 1972
Nutrition and population education: A resource book for teachers, 1973
Population education for teachers, 1974
National bibliography on population education, 1975
Population education in classrooms, 1978
National baseline survey of population education in India, 1980
A decade of population education research in India, 1981
My workbook on population studies, 1981.

Each of the ten participating state teams was requested to bring a draft on one of the following assigned themes: (a) A handout on the national population education programme; (b) Schools and population: what schools as a whole can do; (c) Secondary teacher training college and population education; (d) Elementary teacher training institute and population education; (e) A checklist for organizing a training programme in population education; (f) A training package or a manual in population education for primary school teachers; (g) A training manual in population education for social studies teachers at the middle school stage; (h) A training manual in population education for science teachers at the middle school state; (i) A checklist for monitoring and programme evaluation to be used by population education project staff in a state institute of education; and (j) An illustrated checklist for planning learning situations conducive to development of values.

Draft manuscripts on these topics were also developed by Population Education Unit staff members. Both sets of drafts were discussed and then subsequently synthesized by different groups of participants in the workshop.

The Population Education Unit again organized similar intensive training programmes for the staff of the new eight states joining the project in 1981. Although the broad areas of training remained the same, the actual themes or topics were slightly different from those that were attempted in 1980. These workshops were organized in Bhopal (14 to 23 October) and at Varenasi (14 to 23 December).

A ten days workshop was organized in March 1981 at Coimbatore (Tamil Nadu) for orienting and sensitizing textbook lesson writers in population education. They were drawn from life sciences, social sciences, languages and mathematics. The participants developed draft textbook lessons in different subjects. The materials were written in English, Hindi, Tamil, Kannada and Marathi. The lessons are expected to be revised and finalized in another workshop to be organized for the purpose.

Audio-visual kit. The Population Education Unit in collaboration with the Department of Teaching Aids in the NCERT has undertaken the preparation of five slide/tape programmes. This material is to be specifically used in teacher training institutes and for training and orientation of in-service teachers. The material is woven around the following areas:

a) Population education: meaning and scope. The *why, what* and *how* of population education in-schools. 32 frames.
b) Population education dynamics. About 40 frames.
c) Consequences of population growth. About 50 frames.

d) Family life education. About 40 frames.
e) Population policies and programmes.

Three workshops have been organized. Scripts have been written. One area has been actually developed and others are under preparation.

Research and evaluation. The project provides for Research Fellowships at M. Phil and Ph.D. levels. The Population Education Unit conducted a national baseline survey in population education in 1980. In 1981 it brought out a research bulletin entitled *A decade of population education research in India.* It also promotes research in this area by farming it out and funding it through the educational research and innovation committee of the NCERT. The project documents–both national and state–have provided enough guidelines on project evaluation as an integral part of the project. Evaluation proposed is both by internal and external agencies. It is to be both continuous as well as periodic, mid-term and terminal. Emphasis is on evaluation as an on-going process punctuated by mid-term appraisals and self-evaluation of each programme by organizers and participants.

Impact on target audience. The project as such is still in its initial stage and some States have yet to join. This makes it too early to study its impact on the target audience, primarily the students and teachers. The impact on the staff involved in implementing the programme is, of course, satisfying and encouraging.

Activities at the State level. So far, the flow of activities has been from the centre to the state level mainly because they have consisted of the development of a common framework and guidelines for the country as a whole. Also, it was necessary to provide training and orientation to the personnel manning the Population Education Cells in the states. However the scene of major and more significant activities is now shifting to the states. The concepts and philosophies are now acquiring shape in the field and strategies are being gradually modified or strengthened in the light of feedback being received. The states are developing curriculum and training materials in their regional languages. Folders, pamphlets, brochures, handbooks, syllabi, curriculum guides, multi-media packages, radio talks and the like have begun to emerge and develop. The Population Education Unit now proposes to review these materials and translate the quality materials into English making them available throughout the country.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

INDONESIA

by Sukotjo Hardjosawarmono

Population situation and characteristics

Indonesia is situated between Asia and Australia and between the Pacific and the Indian Ocean it consists of approximately 13,000 islands, about 1,000 of which are inhabited, and has a land area of two million square kilometres.

The main islands are Java, Madura, Sumatra, Kalimantan, Sulawesi and Irian Jaya. In general it has a tropical marine climate with high temperature, high humidity and seasonal rainfall. Most of the Indonesian people, about 82 per cent, live in rural areas while only a small number live in urban areas.

Nearly all countries in the world, especially the developing countries, are facing population problems. Indonesia as a developing country is faced with the following population problems.

1. **Large population.** Based on the latest census which was held at the end of 1980 the total population of Indonesia is 147,383,075. Indonesia is the fifth biggest country in the world in terms of total population after the People's Republic of China, India, the Union of the Soviet Socialist Republics and the United States of America.

2. **Rapid population growth.** In 1930 the total population of Indonesia was 60 million and it had reached 97 million by 1961. This means that in 30 years the population increased by 37 million at an average of almost 1.25 million per year. By 1980 the population was increasing at the rate of 2.8 million annually. This rapid population growth is caused by the constant fertility rate and the declining mortality rate due to the development of science and technology and the improvement in medical care. Rapid population growth will certainly have its impact on all development programmes in the areas of socio-economy, culture and environment.

3. **Uneven distribution of population.** As an example, Java and Madura are inhabited by about 63.8 per cent of the total population on only 6.6 per cent of the land area giving a density of 690 people per square kilometre. Sumatra and Kalimantan, with land areas much greater

than Java have population densities ranging from 9 to 38 people per square kilometre. Irian Jaya, the largest province, is inhabited by only three people per square kilometre.

4. **Young population composition.** Indonesia has a young population with 44 per cent under 15 years of age. Fifty-three and a half per cent are between 15-64 years of age and 2.5 per cent over the age of 65. For statistical purposes it is the 15-64 years age group who are regarded as the productive section of the population. Consequently, Indonesia has an extremely high dependency ratio of 100 to 87.

5. **A relatively high flow of urbanization.** Between 1961-1971, there was rapid population growth in cities in Indonesia, 5.3 per cent annually in Jakarta and 5 per cent in Surabaya. Consequently, the population growth in urban areas is faster than the total population growth.

The five characteristics mentioned above may hamper the smooth implementation of the national development programme aimed at improving the people's welfare. Efforts have been made to solve the population problems in projects such as transmigration, family planning, medical care and nutrition, education, industrialization and intensification and extensification of agriculture.

In 1967, a Declaration on Population was signed by 30 members of the United Nations, including the Republic of Indonesia. In 1969, the Government officially incorporated family planning programmes in the first Five Year Development Plan throughout Indonesia. In 1970, by Presidential Decree No. 8, the National Family Planning Institute was officially installed as the National Family Planning Co-ordinating Board (NFPCB). This Board is directly responsible for the planning, controlling and evaluation of family planning as well as the education of the population. The general guidelines of state policy determine that family planning must be successful.

The Government of Indonesia has set for itself the goal of reducing the 1971 fertility rate by 50 per cent by 1990. This goal can best be achieved through a comprehensive programme which will have an impact on all factors affecting fertility, and through an intensified effort to reach all of the population in Indonesia.

Population education in Indonesia

In 1970 on the occasion of the International Education Year, a seminar among Asian countries was organized by Unesco which formulated population education as follows: 'Population education is an educational programme which provides for a study of the population situation in the family, community, nation and the world, with the purpose of developing in the students rational and responsible attitudes and behaviour toward said situation.'

The definition of population education in Indonesia, which is derived from the Unesco formula, is as follows:

> Population education is an educational programme to develop the students/audience so as to possess knowledge, awareness, responsible and rational attitudes and behaviour toward the effects of population growth on the aspects of human life, socially, economically, politically and culturally within the family, society, nation and the world.

The main purpose of population education is to create awareness, to provide knowledge and to develop responsible attitudes and behaviour as well as improving the population situation to insure a better life now and in the future. The success of family planning does not chiefly depend on the right choice of contraceptive, but on the mental attitude towards having a small family.

Acceptance of the idea of a small family norm through decreased fertility is a matter of understanding and awareness to be developed through human, educative and persuasive approaches in line with the principle of free will. The prerequisite for this purpose is education, especially population education. As a new component of the educational programme, population education is expected to be able to develop a positive attitude towards population issues, among the students/audience in particular and the society in general, so that the Indonesian people voluntarily accept the idea of a small family as a medium of welfare and happiness.

Role and objectives of population education

Mental change cannot be achieved in a short time. It is a long term process of continuous and systematic education. But once this mental change is established, there is a strong base on which to build further effective performances contributing to the rapid decline of population growth in Indonesia. As a new component it is only natural that population education needs to revise and improve its goals, content, methods and implementation. Most importantly, it should attempt to develop a positive attitude by supporting small families and persuading others to follow suit.

The general objectives of population education are:

1. To develop understanding and awareness about the factors causing rapid population growth and the close interaction between population growth and development programmes to enhance the standard of living of the people;
2. To develop rational and responsible attitudes within the life of the nation and the world; and
3. To develop rational and responsible attitudes within the family and community.

The specific objectives of population education are to develop:

1. Understanding and awareness about the factors causing rapid population growth and the close interaction between population growth and the development programmes to enhance the standard of living of the people;
2. Understanding about concepts and processes of basic demography;
3. Knowledge about the causes of and effects of rapid population growth;
4. Understanding about the relationship between human welfare and the socio-economic development programmes;
5. Knowledge and awareness about the government policies on population planning in the framework of development;
6. Understanding and awareness about the meaning and importance of balance in nature;
7. Understanding and awareness about the causes and effects of family size upon the life situation within the family and the society;
8. Awareness of the reality that the size of the family can be planned and not just determined by fate;
9. Awareness of the relationship between maternal health, child welfare and family size;
10. An appreciation of the small family as the foundation to achieve a high quality of life in the community;
11. Understanding about the negative effect of dense population, and its rapid growth on environmental conditions;
12. Understanding and awareness of the reality that individual action can influence the life of the community;
13. Rational and responsible attitudes within the life of the nation and the world;

14. Rational and responsible attitudes and behaviour toward the population programme of the government; and
15. Rational and responsible attitudes within the family and community life.

The scope of population education

Up to the present, population education has not become a discipline of its own and derives its material from those sciences having some correlation with population problems. Four major areas and related units and topics are designed to contain materials of population education. They are: (a) basic concepts of demography; (b) economic development and population growth; (c) social development and population growth; and (d) ecology and population growth. The areas, units and topics are adapted to follow the objectives of each relevant type of education.

Population education in operation

The first year of the implementation of the population education programme was administered by the Office of Educational and Cultural Research and Development of the Department of Education and Culture in co-operation with the NFPCB. The population education programme has undergone several stages which include:

1. **Stage of orientation (1970–1972).** At this stage of orientation the activities comprised mainly of seminars, workshops task force, working group managing and evaluating output of seminars, workshops and task forces on population education in Indonesia.

2. **Stage of pilot project (1973–1975).** The following activities were completed at this stage:

a) workshop to identify topics on integrated population education materials;

b) workshop to develop textbooks;

c) workshop to develop readers;

d) workshop to develop teachers' guides;

e) training teachers of related subject matter who were to teach population education at the pilot stage both in-school and out-of-school programmes; and

f) training administrators and supervisors both at central and regional levels.

At this stage, population education was tried out in schools and at courses on out-of-school programmes. Special attention was paid to the objectives, content, methods, and teaching aids. Evaluation and revision of the above-mentioned components were done through the following steps:

a) A pilot project was conducted at 30 SMP's (Junior High Schools) in six provinces in Java and Bali and at four Government IKIP's (Teacher Training Colleges) of Jakarta, Bandung (West Java), Yogyakarta (Central Java), and Malang (East-Java);

b) Supervising the project on the spot; and

c) Evaluation and revision of programmes and materials.

3. **Stage of institutionalization (1976–1979).** Based on the satisfactory results of the pilot project, the Department of Education and Culture and the National Development Planning Board (BAPPENAS) agreed to carry out the population education programme on a larger scale by integrating it systematically in the whole educational system.

The process of integrating population education into the curriculum and into the educational system is called the process of institutionalization. The following activities supported this process of institutionalization:

a) Workshop on developing population education curriculum for all levels of schools;

b) Workshop on developing textbooks and teachers' guides;

c) Training teachers who were to teach population education at all levels and all types of schools;

d) Printing textbooks for all levels and all types of schools; and

e) Carrying out population education from the fourth grade of elementary school up to the university all over Indonesia.

The approaches used in integrating population education in the in-school programme, and out-of-school programme include:

a) *Monolithic approach.* This approach starts from the standpoint that every topic originates from one independent discipline.

b) *Integrated approach.* This approach starts from the standpoint that all subject matter should be integrated with the other disciplines.

The most suitable approach for population education in Indonesia now is the integrated approach.

Institutionalization of population education in the education system

In order to develop the population education programme, the Minister of Education and Culture by Decree No. 0122/P/1974 of 17 May 1974 established the National Population Education Project (NPEP). By Decree No. 008/U/1975 the Minister of Education and Culture decided that population education topics would be integrated with relevant subject areas from the fourth grade of the Elementary School to the third grade of Senior High School. The integration would be carried out in parallel with the gradual implementation of the 1975 curriculum.

The NEPCB, Department of Education and Culture and BAPPENAS have agreed upon the establishment of teachers to be engaged in population education through the application of a cell system. The aim of this cell system is to speed up implementation of population education. Teachers who have had training are expected to train the teachers in their respective schools.

It is hoped that other government institutions and community organizations will follow the pattern of institutionalization adopted by the Department of Education and Culture. Every implementing unit of the family planning programme is expected to make use of instructional materials prepared by the Department of Education and Culture in developing their own instructional materials according to their specific needs.

The instructional materials were developed according to the level of education into which population education was to be integrated or in line with the trainee's background. For instance, instructional materials for the Military Academy were based on the materials for the Teachers Colleges, and for the Scout Movement materials were based on instructional materials designed for non-formal education.

Population education in subsidiary schools

Besides the introduction of population education under the auspices of the NPEP and the Ministry of Education and Culture, population education has also been introduced into Indonesia's subsidiary school systems. These subsidiary schools are under: (i) Council of Churches; (ii) the *Muhammadiyah*;* (iii) the Armed Forces (ABRI); and (iv) the Department of Religion (*Agama*). There were six projects funded by UNFPA, namely, the following:

1. Population education in subsidiary school system—common activities;

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* A religious group conducting social work.

2. Population education in schools of the Council of Churches of Indonesia (DGI);
3. Population education in schools of the Muhammadiyah;
4. Population education in training programmes of ABRI;
5. Population education in schools and Institutions of Islamic education and Islamic higher education under Department Agama; and
6. Population and family life education for workers under the Department of Manpower and Transmigration (NAKERTRANS).

The new project

The current population project 1980/1981 to 1983/1984, consists of the following activities:

1. Training an additional 50,000 teachers, comprising 25,000 from primary schools, 15,000 from junior high schools and 10,000 from senior high schools. When this additional training has been completed, each junior high school, senior high school and primary teacher training school will have two trained teachers, one in social studies and another in science, the two main subjects to be used as a means for population education, while about half of the primary schools will have one trained teacher. The training will be organized by the provincial offices of the Department of Education and Culture.

2. Provision of teaching kits, slide projectors and textbooks to all of the 160 non-formal learning centres. Three hundred non-formal education supervisors will also be given training in population education. All of the existing 1,600 sub-district level instructors will attend training sessions and 16,000 village workers will undergo an orientation course. Radio programmes will be used to supplement population education in schools as well as in the non-formal education and teacher training programmes. Funds will be made available to produce tapes for distribution to district radio stations for their bi-monthly population broadcasts.

Out-of-school population education

As in the formal school system, a number of government agencies such as the Ministries of Education, Sports and Culture, Health, Transmigration, Information, Religious Affairs, Home Affairs and Defence are involved in out-of-school population education programmes. The main task of overall planning and co-ordinating is vested in the NFPCB. Other private community organizations like Muhammadiyah, Indonesian Council of Churches and the Indonesian Planned Parenthood Association also play active roles in promoting out-of-school population education.

The targets of the programme are those in the age range 10–45 who never attended school or have dropped out from primary school or need to improve their basic knowledge of living. Priority is given to out-of-school boys and girls aged 10 to 15. Although the programme is directed mainly at the out-of-school population aged 10–45, the unlettered population beyond 45 years of age has also been served through unwritten materials such as tape cassettes, posters and the like.

Motivational, instructional and follow-up materials have been developed. Such materials include posters, sound/slides, cassettes, flip charts, puppets, filmstrips and slides. The Ministry of Education and Culture has designed three packages on population education for the uneducated and primary school dropouts. These have been prepared at three different levels for those who graduated from primary but were unable to continue on to secondary, the secondary/junior high school dropouts, junior high school graduates who were unable to go to senior high school and the drop-outs from the senior high schools.

In the preparation of the first package called Package A, the first 20 booklets were developed at a workshop held specifically for that purpose. The next 49 booklets resulted from a competition of manuscript writers. The remaining 31 manuscripts were assigned to different government institutions.

Conclusion

Like the population education in the formal school system, financial difficulties are perceived as the most important problem with the out-of-school programme. Among the solutions suggested are a request asking the local provincial governments to shoulder the cost of printing the materials, and a decision to tap other agencies either within the government or the private sector. Nevertheless population education is now firmly established as an integral part of the educational programmes in the formal and non-formal education systems in Indonesia.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

MALAYSIA

by Fatimah Abu Bakar

Introduction

Malaysia as a country was formed only recently and is made up of Peninsular Malaysia, Sabah and Sarawak. During the early 20th century large-scale immigration from India, China and the neighbouring islands was encouraged since it was then beneficial for the economic development of the country. This resulted in the establishment of the multi-racial society that exists today. Population growth in Malaysia today is more influenced by natural increase than by immigration. Improvements in basic amenities, as well as health and medical facilities, have resulted in declining mortality rates. It is now becoming increasingly important to Malaysia to match natural population growth with national economic development so that continuing improvements in the welfare of the people can take place.

Population situation and characteristics

Unlike many developing countries, the population of Malaysia is still relatively small. The 1980 census reported that the population was only 13.4 million. Malaysia has the potential to support a population of about 50-70 million people with its abundance of natural resources and raw materials which are valuable on the world market. The country has tin, oil, copper and is the world's major producer of natural rubber, pepper, timber and palm oil. Malaysia, lying at the crossroads of major sea and air routes is also fortunate in that it is fairly free of natural disasters such as earthquakes, volcanic eruptions and floods. The nation and the people look forward to a promising era of development and progress.

Malaysia, nevertheless, shares many population features and characteristics with its neighbours. There is a high population growth rate, at an average of 2.6 per cent per annum. If this growth rate is maintained, the country will have its 50 million population by AD 2030. The age structure indicates a very young population. More than 42 per cent of the population are within the 0-14 years age group while the working age group makes up only about 54 per cent of the population. The school-age population in the 16-18 years age group has been growing at an average rate of 1.6 per cent per annum. The trend however shows a declining growth rate, albeit very slow, from 2.9 per cent in 1970 to 2.6 per cent in 1980. As a result, the population in the 0-14 year age group declined from 44.5 per cent in 1970 to 39.5 per cent in 1980 while the proportion of the working age group 15-64 years increased to 56.8 per cent during the same period. This has improved the dependency ratio somewhat, although it is still very high–implying the continuing need for substantial investment in social services such as education, health and housing.

The country's population is also very unevenly distributed. On a regional basis more than 83 per cent of the people reside in peninsular Malaysia with only 7.7 per cent in Sabah and 9.2 per cent in Sarawak. Malaysia also faces the unchecked flow of rural-urban migration. Urban population has increased from 2.6 million in 1970 to about 4.1 million in 1980 with growth rates averaging 4.6 per cent per annum. The most urbanized areas in the country are along the west coast of peninsular Malaysia. Many of the major towns in these areas are already facing congestion and unemployment problems in varying degrees.

Despite the present fast growth rate, the quality of life of the people is improving. This is partly due to the relatively favourable dependency ratio and the socio-economic development efforts that the country has embarked on these past 20 years. Today, Malaysians enjoy a longer life expectancy compared with many developing countries. Life expectancy at birth for males has increased from 63.5 years in 1970 to an estimated 68 years in 1980, while for females, the life expectancy has increased from 68.2 years in 1970 to about 72 years in 1980.

A longer life expectancy however implies that adjustments have to be made by society to accommodate the increased longevity. Over the years, the number of people in the 65 years-and-over age group has increased from 3.4 per cent in 1970 to 4.1 per cent in 1980. In absolute numbers, this constitutes an increase of more than 81 thousand people over the ten-year period and the number is growing every year.

Population education programme goals and objectives

At present the population growth rate does not pose a serious problem to the nation. However, the government regards population planning as an important factor in its efforts to improve the quality of life of the people. The Malaysian five-year development plans recognize that population, resources and development are intrinsically bound together. Population issues such as growth, size and distribution are closely related to changes in socio-economic conditions and such issues are considered an integral component of all development policies and programmes. With well-managed resources and a healthy, skilful and knowledgeable population, the country should progress and prosper.

Population policy *per se* is provided through the passage of the Family Planning Act 42 pronounced in Parliament in 1966. The policy is to reduce the growth rate to 2 per cent by the year 1985. This is to be achieved through decreasing fertility levels leading to a lowering of the rate of natural increase. The National Family Planning Board (NFPB) was set up in the same year to oversee the implementation of the population programmes that followed.

Participating agencies. Since 1966 many agencies have directly contributed towards the overall betterment of the people. These agencies are either economic-development based or social-development based. The first category includes the Department of Agriculture, the Rubber Industry Smallholders Development Authority (RISDA), the Farmer's Organization Authority (FOA), the Federal Land Development Authority (FELDA), the Department of Veterinary Services and the Malaysian Agricultural Research and Development Institute (MARDI). Some of the social-development based agencies are the Department of Health, the Social Welfare Department and the Division of Community Development (KEMAS). In almost all these programmes the population issues have been towards improvements in basic human needs such as food, shelter, health, hygiene and education both at family and community levels.

Deliberate inclusion of population education programmes into existing agencies only began in 1973. Since then the nation has embarked on a number of population education programmes, both formal and nonformal. They are addressed to various target groups ranging from the in-school population to youths, workers, farmers and other adults. The aim of these programmes is not so much directed towards limiting numbers but more towards creating awareness in young people of the need to maintain a balance between the rate of economic and resource development and that of population growth. Through an exposure to population education it is hoped that the nation will have an informed citizenry able to respond positively to issues of population.

The population education project. The in-school population education project was established as part of the Curriculum Development Centre (CDC) in 1973 by the Ministry of Education. It is aimed at assisting pupils to 'acquire a basic understanding of the population phenomena of the country, of the implications of a growing population characterized by a high percentage of young people, and the nation's need to improve the standard of living of Malaysians.'

Through this programme, pupils will be provided with the opportunity to study the population phenomena in Malaysia in particular, and the world in general. The pupils will be able to learn about how and why a population changes and the effect population change has on the quality of life of the people and of the environment they live in. This is to develop their understanding of the relationship between the changes in population, and issues such as employment, industrialization, urbanization, squatter phenomena, pollution, housing, education and health services, and the supply of food, water and energy.

In addition, they will be helped to understand the relationship between population characteristics and aspirations for the improvement of the quality of life of the individual, the family and the nation. This includes understanding the implications for a population with a high percentage of young people, and the nation's attempts to provide adequate education and job opportunities. It also includes the need, and what it takes, to generate national income and to exploit natural resources to service the immediate needs of a youthful population, while at the same time, to have adequate national savings for development, and to create more and better opportunities for the future. A knowledge of these concepts will enable the pupils to have a better understanding of the determinants and consequences of population change. It is important that they realize that population change will have its effect on the individual and on the national well-being in terms of the quality of life that is envisaged for the country and in terms of individual responsibility.

University participation. Population education at the university level provides for both academic pursuit and training of community leaders in population communication and community development services. In the first case, it provides for in-depth studies of population issues in development and in planning, as well as for carrying out population research. The two leading universities in the country, the University of Malaya and the Agriculture University take on this responsibility.

The Agriculture University of Malaysia also plays an important part in providing non-formal education directly to the rural population. This is mainly organized and channelled through the University Centre for Extension and Continuing Education. Among the non-formal programmes offered by the Centre is the Extension Services Programme. The implementation of the programme is done through the centre's extension officers. Several villages in the neighbouring districts have been adopted by the centre. These villages serve as the centre's extension areas where activities are conducted by the extension officers. These activities involve the farmers actively in the planning and implementation of programmes for educational change. The programmes are designed to bring about improvements in the quality of life of the farmers through changes in attitudes and skills in agriculture. Information pertaining to problems and issues on population, as affecting the quality of life, is included in these programmes and activities.

Non-formal programmes. In Malaysia, 75 per cent of the population live in poverty in rural and less developed areas. Endowed with the availability of cultivable land, land development has become the spearhead of Malaysia's development programme. Since 1956, the Federal Land Development Authority (FELDA) has become the single most effective implementing agency of the nation's land development programme.

This is an integrated programme designed to promote both economic and social progress. The scheme provides each family with an economic agriculture holding, along with the basic infrastructure and amenities. It also provides for a community development programme which guides the settlers through the expected modernization process. FELDA field officers undergo a training programme which includes the technicalities of agricultural extension, home economics, leadership, rural sociology and management with emphasis on decision making. These officers carry out non-formal education for the settlers which is designed to raise the standard of living of the settlers and enable them to attain a better quality of life. There are five components in the programme: adult education, health, leadership, religious knowledge and economics. Population education elements are infused in the training programmes as well as in the five components of the social development programme for settlers.

The Information Education Communication (IEC) Division of the NFPB undertakes the task of providing non-formal education to youths above the age of 15 and who are already out of school. The programme is designed to assist learners improve their quality of life through exposure to information regarding population structure, its growth and effects. The programme also aims at providing them with the skills to deal with their own problems regarding responsible parenthood.

Strategies

At planning level it has been necessary to expose decision makers and persons of authority to the need for introducing population education programmes. In this regard both in-school and out-of-school population education programmes have employed several similar strategies. In early 1970, two national workshops were conducted and several study tours were organized to acquaint decision makers with various population situations, issues and programmes. These activities also served to assess the needs and direction for introducing population education programmes in the country.

In addition to these two activities, successive dialogues were also held with professionals, interested individuals and religious leaders to clarify the interpretation of population education for the in-school and out-of-school projects. High level committees of advisers were also set up to determine the line of direction for project formulation and development. The advisory committee of the population education project for schools is made up of the directors of the Divisions of the Ministry of Education.

The inclusion of population education into the programmes of various agencies is carried out within the existing structures of their educational, training, communication and development programmes. Population issues are either integrated with the existing curriculum, as is the case with the in-school population education programme and the community development services programme, or it is designed as a separate course of study, as is the case with the undergraduate and graduate programmes on population at the universities.

Population education is introduced into the school curriculum by way of the inter-disciplinary approach. The main school subjects considered relevant for incorporating population education concepts are civics, geography, science, mathematics, health education, home science and language. The levels selected are from grade IV at the primary level to grade XI at the upper secondary level. In this activity it was necessary to work with syllabus review committees. Members of the population education project served on the committees to facilitate the task of incorporating suitable education concepts into the new syllabuses.

At the outset it was necessary to develop an overall scope and content of the population education curriculum. This was to ensure a proper coverage and hierarchy of concepts for consideration for integration with the various subject areas. The curriculum was organized around three major areas.

1. Basic demographic concepts

This area consists of facts about population variables and processes, as well as population characteristics, which make up the determinants and consequences of population change. Demographic concepts are considered basic to the understanding and analysis of various population situations and events.

2. Population situations

This area describes various population situations resulting from man's interaction with the environment. The exploitation of the environment and natural resources is an essential feature of the human way of life. However, rapid population growth generates an increasing demand for goods and services. The result is the depletion of natural resources and the deterioration of the environment. The ideal population situation, of course, is one in which population growth is balanced by the systematic and sensible management of natural resources. This vital balance can only be achieved if social, economic and political factors are conducive to its achievement.

3. Population issues

This area highlights various unsatisfactory conditions which have become issues and which have come about, whether directly or indirectly, as a result of too many people or too few people. The main issue of concern in this area is the quality of life. Quality of life is subjective and variously interpreted by different individuals and communities. However, there are certain measures and indicators which are universally accepted. We expect a certain quality of life considering the abundance of resources available in the country, and the economic advantages that come from the exploitation of these resources. Population issues are seen as the individual's need to analyse the situation around him and the steps he can take to improve it.

It has also been necessary to produce instructional units to show how population concepts are infused into the existing subject areas. In this respect teaching units in civics, home science, science, mathematics and language for grades VII to IX have been developed. The development of these materials was carried out by employing successive planning, writing and material review workshops. These workshops involved educationists, curriculum developers, state personnel and teachers as well as members from other population education projects.

Support materials for teachers have been developed to serve as additional resource materials for classroom teaching in population education. The Population Education Unit has developed a set of posters on 'Man and his environment'. The unit also has plans to develop some books which will serve to overcome the shortage of suitable reference materials on various population situations and issues. The writing of these materials is contracted to several specialists from the local universities. The topics and outline of content are collectively identified by the writers and project team to ensure coverage as well as to avoid duplication.

Population education for the out-of-school population is problem-solving oriented. It stresses the relationships between family size and growth and family welfare. Several writing workshops were held to develop the following instructional materials: *Population concepts and issues; Population growth and economy; Population growth and social development; Population growth and educational development,* and *Population growth and the environment.* These materials are presented in module format and designed for use by individuals as well as groups. The population content is viewed within subject areas such as home economics, health and nutrition.

Training

Training and orientation on population education is particularly relevant due to the nature of the programme as well as the strategies used in introducing it into the various educational and development programmes. For the in-school population education project, policy requires that any curriculum innovation must be implemented on a national scale. The strategy used for teacher orientation has therefore taken the following needs into account:

1. The need to persuade teachers to accept the programme;
2. The need to equip teachers with a knowledge of the complexities and sensitivities of the population-related issues;
3. The need to provide teachers with the skills and techniques of selecting and handling population concepts that are appropriate for their respective subject areas; and
4. The need to train a large number of teachers within a reasonable period of time.

The strategy relies on the use of self-learning materials (SLEM) to provide teachers with a broad and basic knowledge of population as well as population-related issues. This is to enable teachers to assimilate the information at their own pace and convenience.

The SLEM package is made up of eight modules. These are: (1) Introductory module; (2) Population change—its determinants and consequences; (3) Population situation in Malaysia and in the world; (4) Population programmes in Malaysia; (5) Population and environment; (6) Population and resources; (7) Population and social services; and (8) Population and quality of life.

In addition to the modules, teachers also attend school-based seminars where they are given the opportunity to discuss with their colleagues the content and issues arising from the modules. Heads of schools play a key role as managers of the discussion sessions. A management module has been prepared to enable headmasters to carry out this task.

The training programme for the out-of-school population education project adopts both the modular approach and face-to-face interaction. Resource personnel at national, district and local levels are chosen from those already involved in the various community development programmes. Their training programme includes content, techniques of information dissemination and theory of adult education. This is either carried out as part of the regular training of the officers, as in the case of the FELDA training programme, and training of extension workers by the University of Agriculture, or it is carried out as an orientation programme specifically in population education. Such orientation programmes are normally of short duration and generally do not exceed one week.

Population education is taught as a separate course in the Department of Home Technology but it is also included in courses on Family and Health, Maternal and Child Care, Family and Community Health. The Faculty of Science and Environmental Studies also includes population concepts in its courses of studies while the Centre for Extension and Continuing Education integrates population education elements with four of its courses: Introduction to Extension Education, Programme Planning, Environment and Development and Farmer Development Education.

Documentation

Materials on population and related issues are constantly being received from local and international agencies by those institutions that have population education programmes. These materials have been catalogued, to a large extent, and made available to in-school project members, other units of the CDC and any other interested parties. In this respect, the project acts as a collecting and disseminating centre since it probably has the best collection of population education materials in the country. The project hopes to become a part of the national network of population libraries when the network finally materializes.

Linkages with other programmes

At the national level the various population education programmes are linked through the NFPB. This is carried out through a steering committee whose membership is made up from the five national population programmes—the Ministry of Education, the University of Malaya, the Ministry of Agriculture, the Ministry of Health and the NFPB. The NFPB is answerable to the Economic Planning Unit which is under direct control of the Prime Minister's Department. The NFPB also undertakes to co-ordinate the activities of population education programmes between the in-school and out-of-school projects.

For the in-school programme the CDC takes every opportunity to develop and incorporate population education so that it is in line with the aims of the total education programme. Project staff can also participate in all curriculum revision activities where population education concepts can be given due consideration, wherever relevant. The syllabuses of three subjects; civics, health education and science have been revised and population concepts have been successfully incorporated. Currently, the CDC is embarking on an overall revision of education towards providing general education for all, up to grade XI. The project team is fully involved in this exercise. Population education, along with other current issues, is being considered in the new general education curriculum programmes. The project operates within the existing CDC structure with regard to implementation of new curriculum programmes using the state level curriculum officers, who, after receiving orientation, can assist in monitoring programmes at the state and district levels.

Population education in the out-of-school sector, carried out by other agencies, is linked both through the NFPB as well as within the activities of the agencies concerned. In most cases, population education is incorporated within the overall activities and objectives of the agencies. The Extension Service Centre of the University of Agriculture considers its population education component as part of its adult education programme and the Division for Community Development considers population education within its Family Life Education and Development Programme. The University of Agriculture offers population education as part of its training programme for field officers who then disseminate the ideas through their extension work with farmers and other rural communities.

Accomplishment of programme

The population education programmes are at various stages of implementation. The in-school sector has successfully incorporated population education in the teacher-training programme through health education; and population concepts have also been included in mathematics, science and civics at the school level. Its teacher orientation programme has been successfully tried in 47 schools in two districts where more than 500 teachers were involved. This programme will be ready for nation-wide implementation in late 1982. The IEC Division of the NFPB has carried out training programmes since 1975 and has built up a large core of resource personnel from various government bodies at both national and state levels. Since 1977, FELDA has carried out annual training programmes which include population education components for about 300 Trainee Field Assistants. Similarly, the University of Agriculture has produced professionals and sub-professionals who have a knowledge of population education. In 1974, the university extended this programme to its Sarawak Branch which caters for students from both Sabah and Sarawak.

Impact on target audience

When population education was first introduced, it was given a mixed reception. It was criticized as an extension of the family planning programme and misinterpreted as being directly concerned with limiting family size and controlling population growth. Such criticisms had the effect of slowing down programme activities since it was necessary to clarify the aims and objectives of the project as being in line with overall objectives. The present definition of the programme, as that of 'creating awareness of population-related issues and their effect on the quality of life of the peoples', has had wide acceptance, leading to the successful installation of population education in the out-of-school sector. The idea of looking at population issues within the context of community development and family life education has also been well received. The measure of this acceptance can be seen in the increasing number of community and social development agencies that incorporate population education into their programmes. Although the in-school programme is yet to be implemented, teacher orientation trials have shown that the programme is well received by headmasters and teachers.

Problems faced and strategies used to overcome them

The development of population education programmes has posed a number of problems and challenges for the population education project team both in terms of the curriculum development process and content interpretation. First, at the time of the inception of the project, the Curriculum Development Centre itself was in the process of formulating its policies and directions. Second, population education was a new area of curricular emphasis and as a value-laden issue, its introduction was made more complex due to the plurality of the Malaysian population. The interdisciplinary approach and the strategy of infusion and integration were all new. It required the project team to construct the population education curriculum through successive stages of approximation and adjustment. For a start, the project team was set up consisting of educationists in both the social sciences and the sciences. This enabled the idea of the interdisciplinary approach to take place with relative ease. It has been necessary to identify personnel from other curricular units especially in science and social studies to permanently work with the project team in all population education activities. On the other hand, the project makes sure that at least one member of the project team participates in the activities of these curriculum areas. This ensures that continuity and systematic integration take place.

For ease of integration it has also been necessary for the project to look ahead and prepare, identify and select the scope and content of population education suitable for various subject areas so that they are duly considered as and when these syllabuses are reviewed. The quality of the materials in terms of content and presentation has gone a long way towards encouraging people to use them and learn more about the programme. They are noteworthy for their clarity, the accuracy and comprehensiveness of information and the use of innovative and interesting forms of presentation.

Innovative experiences

1. Orientation to national development goals

Looking at issues and problems through education was a relatively new concept in the 1960s. Looking at population as an issue in Malaysia was even more so, since it was assumed that the country was yet to face a population problem. In setting up the population education programme it was necessary at the outset to determine the nature of the population problem and the direction the project would take to keep it in line with national objectives. This served as the needs assessment of the population education programme. It was also necessary to create an awareness among educators and decision makers of the effect a high rate of growth would have on the development of the nation. To do this, national workshops and study tours were organized which acquainted the relevant personnel with the aims and objectives of the population education project.

2. Curricular renovation through population education

Population education is a new area of curricular emphasis both in terms of the curriculum development process as well as the approach. It is inter-disciplinary in nature and strategies had to be worked out to show how best population issues could be incorporated into the main curriculum. Population education is seen and studied as part of other subjects instead of as a separate subject. Whenever a syllabus is being reviewed, members of the project serve on the syllabus review committee to include suitable population education concepts in the new syllabus. Syllabus reviews provide the best opportunities for a proper integration of population education concepts with the various subject areas.

Two strategies have been adopted for the incorporation of population education concepts in the various subjects: infusion and integration.

Infusion is described as the substitution of examples in existing topics of a subject with population education examples. This strategy is used for subjects that are not expected to undergo syllabus review in the near future. Integration, on the other hand, is the incorporation of population education topics in a new syllabus.

It was necessary to develop the curriculum profile of population education before integration and infusion processes could take place. The development of the scope and content of population education had to undergo successive processes of approximation and adjustment in terms of determining content and presentation. The project discovered that teachers found the presentation of concepts in the form of instructional objectives as the most beneficial. It facilitated the problem of identifying and matching suitable population concepts with relevant topics in various school subjects.

To ensure that population education is infused into the textbooks, seminars have been held for textbook writers from all the publishing companies in Malaysia. To date, the integration of population education with modern mathematics and science has been accomplished. The CDC has also established a communication link whereby publishers can communicate directly with the project as a follow-up of the initial contact to ensure that appropriate changes in textbooks are made. The new process of integrating population education concepts with the subject areas gave light to a number of new aspects in classroom learning. The injection of population concepts gave added emphasis to the content and also enabled novel and more meaningful classroom learning to take place as the implications of population events touch on the life and surroundings of all students.

For the in-school programme, the project has prepared teachers' guides for Forms 1, 2 and 3 in the following subjects: mathematics, civics, integrated science and home science. These teachers' guides contain several lessons units, which are made up of lesson plans, showing the infusion of population education ideas and concepts in various topics. In addition, the project has also collaborated with the English Language Unit of the CDC in the preparation of supplementary intensive reading passages and dialogues for Form 1. These reading passages and dialogues, written by specially trained key personnel in English, incorporate a wide variety of population ideas and concepts.

Since population education is not introduced as a separate subject, it has to adjust to any new changes that take place in the curriculum. The entire Malaysian school curriculum is presently being revised. For the first time, the project is involved in the formulation and development of a totally new primary school curriculum. Systematic integration, with population issues considered alongside the total content of the curriculum, is able to take place. It is no longer necessary to prepare special population education materials for grades I, II and III of the new primary school curriculum since, at this level, all subjects are totally integrated with the three areas of communication, man and the environment and religious knowledge/moral education.

The new secondary curriculum is still in the formulation stage, but it is foreseen that drastic changes will be effected up to the upper secondary level. The study of current issues related to diverse topics such as population, the environment, drug abuse and consumerism will be given prominence in the new general education curriculum planned for the secondary level. This means that the project team will need to work closely with the members of other curriculum units so that population education will finally and completely be integrated into the school curriculum.

In view of the shortage of suitable reference material, it was also necessary to produce reference material with a Malaysian orientation. This scheme was contracted to several specialists from the various local universities. The topics and outlines of these materials were collectively identified by the project team and the university personnel in order to ensure comprehensive coverage as well as to avoid unnecessary duplication of information. One of the volumes entitled *Population and food supply in Malaysia in perspective* has already been produced. The other volumes are still being processed by the project team.

The in-school population education project has formulated and developed a totally new strategy for training teachers in population education. This strategy relies on the use of self-learning materials (SLEM), not only to provide teachers with the relevant knowledge and information, but also to orientate them to the desired attitudes and values. While the content of each module in the SLEM package is complete in itself, the contents of the package as a whole are interrelated and sequenced.

At the same time, the programme does not totally do away with the need for a face-to-face interaction. Thus, in addition to reading the modules, the teachers are also required to attend school-based training where they are given the opportunity to discuss the contents of the modules and related issues with their colleagues, guided by the headmaster. A self-instructional management module has been prepared specifically for the headmasters who act as managers of the school-based training. This strategy takes care of both the logistical problem normally involved in the conventional in-service training of large numbers of teachers, as well as the uncertain effectiveness of such training using several intermediaries.

The programme was designed to operate within the existing structure established by the CDC for implementing new curriculum projects. This uses the state level curriculum personnel, who, after receiving orientation assist the project staff to orientate the headmasters who then conduct the discussion sessions on SLEM with their respective teachers. For the orientation of these personnel, video programmes were developed which included: an opening speech by the Malaysian Director-General of Education; 'Population situation in Malaysia; and 'Population education programme for Malaysian schools'. This ensured the accuracy of message dissemination as well as providing a different mode of presentation to keep participants interested.

Conclusion

The population education programme has been in operation for nearly ten years. Much of that time has been taken up with trying to interpret the issue and develop the programme so that it is in line with the national objectives and population situation of the country. The population issue that has evolved is looking at population as a factor affecting social development efforts particularly with regard to uplifting family and community welfare. This seems to have wide acceptance and an increasing number of agencies are incorporating it into their programme activities. A time will come when the population education programme will also need to adjust to changing population situations where with better quality of life, life expectancy is increased.

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*Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982*

NEPAL

by R.K. Rongong

Population situation and characteristics

The Kingdom of Nepal is a landlocked country with a total land area of 145,305 square kilometres. It is bounded in the north by the Tibetan Region of China, and on the south, east and west by India. It consists of three main ecological zones running east to west: (1) the mountain region which ranges from 5,000 to 9,000 metres above sea level, including Mt. Everest; (2) the hills, with altitudes from 300 to 5,000 metres which include the valleys of Kathmandu, and Pokhara; and (3) the Terai, with altitudes ranging from 60 to 300 metres above sea level. The mountain region is about 35 per cent of the total land area and the home of about 10 per cent of the people; the hills about 44 per cent, the home of about 52 per cent; and the Terai about 21 per cent, the home of about 38 per cent of the population.

The population of the Kingdom according to the preliminary results of the 1981 census is 15,020,451. The annual rate of growth has been calculated at 2.6 per cent. The rate of growth in the mountain region, the hills and Terai was estimated at 1.3, 1.8 and 4.1 per cent, respectively. According to the Sixth Five-Year Plan (1981-1985), the density of population is estimated as follows:

Year	Density per sq km	Density per sq km arable land	Density per sq km of forest area
1980	98.83	445.88	340.07
1985	113.50	495.67	449.72

The 1979 UNFPA Needs Assessment Mission observed that the arable land/population ratio is becoming more and more unfavourable, with the increased population particularly in the hills. Population pressure has contributed to massive deforestation and erosion problems, with implications for the whole sub-continent. The country is predominantly rural, comprising 95 per cent of the total population. More than 50 per cent of the urban population live in the towns of the Kathmandu valley. The Economic and Social Commission for Asia and the Pacific (ESCAP) estimated that 42.4 per cent of the population in 1979 were below age 15. The fertility rate was 6.3 and the infant mortality rate was equally high at 156 per thousand live births. Life expectancy at birth was 43.9.

The population statistics given above are not encouraging. The Sixth Five-Year Plan states that in the absence of planned population growth no development effort of any kind will have any significant result. It is for this reason that the Government has formulated a comprehensive population policy, which is designed to influence the size and spatial distribution of its population. The 1979 UNFPA Needs Assessment Mission considers this fortunate as Nepal is faced with a rapidly increasing population that could double in about 27 years. Moreover, the dependency ratio is shifting in a manner unfavourable to the country's development prospects. Largely because economic development has not kept pace with population growth, the country's *per capita* GNP is shrinking.

Population education: formal and non-formal

Origin

To implement its population policy, which has become a component of Nepal's Five-Year Plans, many population programmes have been launched including family planning/fertility control, internal and international migration, spatial distribution and manpower development. Family planning integrated with maternal child health was introduced as early as the mid-sixties. Various kinds of population education activities were also initiated at various times by different agencies in the form of seminars, workshops, meetings and conferences, but the results, unfortunately, have not been very encouraging. This clearly indicates that isolated activities do not have much impact and do not provide enough insight to the real problem. There was a felt need for a systematically developed network for imparting population education. Since creating awareness, imparting knowledge and changing attitudes are the main objectives of population education, it was deemed necessary that this be done through the Ministry of Education and Culture (MEC). It was felt that population education can never produce any effective results unless it is knitted into the educational programme in such a way that it becomes an integral part of the educational system of the country. In 1979, the MEC in collaboration with Unesco and UNFPA organized a National Planning and Development Meeting in Population Education. The objectives of the Planning and Development Meeting were: (1) to understand the concept and nature of population education and population education programmes in Asia; (2) to review the existing programmes of population education initiated by various agencies in Nepal; and (3) to develop guidelines for the formulation of a national population education programme, both in-school and out-of-school. All of these objectives were achieved.

The meeting also brought together 29 participants representing 16 different organizations to think collectively about an effective programme in population education at the national level. The report of the meeting was of great use to the UNFPA Needs Assessment Mission and served as a basis for formulating a national programme in population education. Subsequently, a population education project was formulated for UNFPA funding, with the help of the Unesco Regional Team on Population Education.

Four organizations were identified as implementing agencies of the project. The two from the MEC were the Curriculum, Textbook, Supervision Development Centre (CTSDC) and the Adult Education Division. They were supported by the Curriculum Development Centre, Tribhuvan University; and the Institute of Education, Tribhuvan University. An advisory committee consisting of the heads of the above mentioned units, under the chairmanship of the Secretary of the Ministry of Education has been constituted.

Goals and objectives

The primary goal of the project is to gear the entire system—formal and non-formal—to the realization of: (1) the potential role of education in the development efforts of the country; and (2) the interrelationships between the population situation and different aspects of quality of life at the micro and macro levels. The long range objectives of the programme are as follows:

1. Develop in the target audience an insight into the interrelationships between population growth and the process of social and economic development at the individual, family, society, national and international levels;
2. Develop desirable attitudes and behaviour in the teachers, students and the community at large towards population issues so that they may take rational decisions about their family size and the quality of life that they would like to have; and
3. Institutionalize population education in the formal education system, including university, and the non-formal education programme of the Ministry of Education.

In a 1981 population education curriculum development workshop, two further objectives were added:

4. Develop in learners a knowledge and understanding of basic concepts, processes and measures; and

5. Develop among learners an awareness of the attitudes, beliefs and values affecting decision-making on population issues and problems.

Training of key personnel

The key personnel identified to man the different units implementing population education had no prior training and experience in population education. Three modalities of training were deemed necessary, namely: (1) an intensive training programme for the project staff; (2) orientation for key administrators; and (3) an inter-country study visit.

1. *Intensive training programme.* This training programme was preceded by a two week Workshop for the Preparation of Instructional Materials for the project staff. During the Workshop the participants studied the content of the training programme intended for them so they themselves could assign topics which they would like to discuss during the training courses. The whole training programme was premised on the assumption that the best way to learn is to teach. The materials needed for the workshop were provided. A Unesco consultant assisted in locating the sources of materials in the books as well as in other materials also related to the workshop.

   All the project staff participated and the discussion leaders prepared elaborate training materials which could be used for the training of other personnel. The first half of the course was devoted to population dynamics and the second half to population education. The participants prepared tentative plans for the future activities of their respective units. At the end of the workshop an evaluation of the training programme was conducted by means of a post test and evaluation check-list.

2. *Orientation for key administrators.* An orientation programme for key administrators responsible for the implementation of the population education programme in CTSDC, Tribhuvan University, and non-formal education was organized at CTSDC in Kathmandu for three days. There were 20 participants as well as Zonal Directorates and District Education Officers.

3. *Inter-country study visit.* In order to provide the personnel involved in the implementation of the Population Education Programme with first-hand experience, an inter-country study visit for 16 persons was organized by Unesco for four weeks duration culminating in a short training course at the Unesco Regional Office for Education in Asia and the Pacific in Bangkok.

The selected countries were the Philippines, the Republic of Korea and Thailand. The selected candidates were from the following institutions:

Candidates	Institutions
4	Ministry of Education and Culture (MEC)
7	CTSDC, Harihar Bhawan
2	Institute of Education, Tribhuvan University (TU)
1	Curriculum Development Centre, TU
1	Bhaktapur Campus, TU
1	District Education Office, Kathmandu

Curriculum development in population education

This workshop made a concrete contribution to the field of population education in the school education system in Nepal. The workshop for the development of curriculum in population education was held at CTSDC, Kathmandu, for three weeks. It was conducted by CTSDC with technical assistance from Unesco and financial assistance from UNFPA. The workshop focused on curriculum development in population education. Various units of the Ministry of Education's Adult Education Section and the CTSDC and Tribhuvan University's Institute of Education and Curriculum Development Centre participated in the workshop with selected teachers and supervisors.

The workshop was designed so that population education was viewed as a means for curricular renovation. The organizers of the workshop recognized that in effecting curricular reform or improvement, using population education as a means, there are procedural designs that should be followed. Population education was viewed as an educational programme consisting of both content (derived largely from demography and population studies) and method (premised on the idea that it is not designed to indoctrinate but to pose realistic alternatives, to examine the consequences of each alternative and to enable individuals to formulate rational decision-making behaviour regarding population issues).

The different steps of the procedural design for renovating the curriculum through population education adopted by the workshop are briefly discussed below.

1. *Defining the goals of population education.* The goals of population education in Nepal have already been spelled out and are included in the Project Document, NEP/80/PO8, *Population Education Programme.*

2. *Development of a conceptual framework.* The workshop identified the population concepts necessary to realize the goals and objectives of population education.
3. *Identification of plug-in points in appropriate subjects by grade level.* Population education, in Nepal, is meant to be curricular enrichment—both in content and methodology. The workshop decided to integrate population education content with existing subjects and identified natural plug-in points in civics, geography, home science, mathematics, science and social studies as well as non-formal education.
4. *Development of scope and sequence of population education concepts.* The workshop sequenced the population education concepts by grades and subjects.
5. *Development of curricular materials for teachers and students.* The population education staff of CTSDC developed and printed teachers' guides in population education for science, social studies, home economics, health, geography and rural economics in the Nepali language. Different subject committees manned by subject specialists, teacher educators and population education experts were involved in this.

Population education in teacher education

The Government realizes that a teacher can be the most effective medium of population education. The teacher is the one who commands the attention of hundreds of students every day. Nepal's 40,000 teachers command six million hours of one million students every day. These teachers can significantly and efficiently communicate the message of population education if they are themselves aware of the problem. Thus, the teacher educators play a key role. The Institute of Education (IOE) has realized the importance of this aspect of education and has initiated the effort to integrate population education content with the social-studies curriculum. A two-week workshop was convened by IOE, Tribhuvan University, involving teacher educators. Using the output of the CTSDC Curriculum Development Workshop, the courses in teacher education, particularly the social studies/social sciences were examined to see how they could be enriched.

The IOE is also in the process of developing a source book on population, a training package in population education and a set of audio-visual materials for population education.

Research and evaluation

Knowledge and attitude surveys of students, teachers and parents are under preparation by the Curriculum Development Centre, Tribhuvan University. The outcome of the surveys will be one of the bases for the enrichment of appropriate tertiary level courses of population-related topics.

A longitudinal evaluative research programme is also under preparation to determine the impact of population education on its target audience. A study on the effectiveness of different methodologies of teaching population education will be done by the project.

Population education in adult education

Population education in adult education was conceived as an experiment covering 20 centres in four districts of Nepal. The experiment is planned to be evaluated by the end of 1982. The results of this evaluation will be taken as the basis for developing future programme activities commencing from 1983.

Under this experimental phase, the Adult Education Division of the MEC developed curriculum in population education and trained key personnel to provide leadership. A part of the curriculum has also been translated into six self-learning booklets for adults. The Division has also developed an outline for preparing a guide for the field workers in adult education. The guide is planned to serve as a source book from which the content for training field workers may be selected. In addition, it will have sample motivational, instructional and follow-up materials which can be used for teaching in adult education centres.

The Division has an on-going Integrated Non-Formal Education Programme with staff who aim to include population education concepts in all publications to be developed and used by the programme in the field.

Conclusion

Population education is beginning to take root in the formal and non-formal education system and is viewed as a crucial complementary programme to family planning and other population programmes in Nepal.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

PAKISTAN*

Population situation and characteristics

Pakistan is one of the most thickly populated countries in the region with a growth rate of about 2.98 per cent per annum. According to the latest census report, the population of Pakistan in March 1981 was about 83.7 million. More than 45 per cent of the population are below the age of 15 years which implies a high rate of dependency. There is a pattern of high fertility and low income, coupled with a comparatively under-developed agriculture sector. One in five of the population is a female of reproductive age. The total fertility rate per woman averages 6.0–7.0 and there are over three million births a year. The infant mortality rate is 115 per 1,000 live births and there is a maternal mortality of six per 1,000 women giving birth. Only half the total age group between ages 5–9 are in school and 50 per cent of the girls drop out before finishing primary school.

The rate of GNP growth while quite impressive is only three per cent higher than the growth of the population. Annual growth in personal income is about US $18 per person. Population density varies widely from seven persons per square mile in Baluchistan to 207 in Punjab. These are not high densities in absolute terms, but in Pakistan, population pressure is already pushing hard on the available resources. Per acre growth in the agriculture sector, which increased during the green revolution period of the 60s, is now slowing down. With its present organization of agriculture and food production, Pakistan is a country with enormous problems. Some hope for improvement may lie in the utilization of yet undeveloped natural resources, both human and material.

Population education: past and present

Recognizing that the high birth rate was a major hindrance to development, the Government of Pakistan launched a family planning programme in the 60s, based on a clinical approach. However, over the years the limitations of a unipurpose clinical approach were recognized and efforts were made to mobilize other sectors for the promotion of population-related programmes. One such programme is in the education sector. In July 1973 the Family Planning Association of Pakistan, in collaboration with the Ministry of Education organized the first workshop on Population and Family Life Education at Khanespur. Education planners, administrators, curriculum development specialists, teacher educators, and representatives of teachers from all over the country attended the workshop. This activity provided a platform for dialogue between population and education specialists. This became the starting point for integrating population education in educational programmes. A series of activities was later jointly planned and undertaken by the Population Division and the Ministry of Education for integrating population education into the formal school system. The efforts in the out-of-school education system remained limited to information, education and communication activities and thus population education, as such, did not make much headway.

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* Contents of the report were partly taken from a publication entitled: *Fifth Five-Year Plan Population Planning Plan 1980–83,* a document of the Population Division, Ministry of Planning and Development, Government of Pakistan, Islamabad.

Out-of-school population education. There are 50 million illiterates in the country, a situation aggravated by the addition of three million children who drop out of primary schools annually, prior to the attainment of a proper level of literacy. This out-of-school population, which is not covered by the formal education system, constitutes a very potent segment of society as it is directly affected by decisions that directly or indirectly involve the welfare of the individual, family, community and the nation. In the past the Government of Pakistan made a number of efforts to eliminate illiteracy and provide some learning opportunities to certain groups through various government, semi-government and voluntary organizations. These sporadic programmes achieved some encouraging results but still fell far short of the expected outcomes. There was a need, therefore, to revitalize the earlier programmes and to initiate new and effective ones for a more rapid extension of population awareness to the people.

Experience has shown that in Pakistan it takes more than a conventional family planning programme to solve the problem of rapid population growth and so improve the quality of life. Therefore the objectives and the content of the population education programme being envisaged for Pakistan keep the ideology of Pakistan and the socio-cultural context firmly in view.

Formal population education. The scope of formal population education covers the entire academic system, beginning from the primary level to the university and professional colleges. In 1980, enrolment in these various levels was around ten million which means that every eighth person was enrolled in an educational institution. With the introduction of population education in the formal stream of education one sees the potential for reaching vast masses of people in a systematic and organized manner. With the above in mind, the Government of Pakistan initiated action to integrate population education in the formal and non-formal education sectors.

Curriculum development. The National Bureau of Curriculum and Textbooks, and the Population Planning Division have played active roles in the introduction of population education into the formal school system. Under the guidance and active support of the National Committee on Population Education, these organizations have developed a population education curricula for primary, middle and lower secondary schools. Steps have been taken to develop instructional materials and to organize training programmes in population education for primary school teachers. The National Committee on Population Education after reviewing different modes of introducing population education decided that the integrated approach would be followed in the formal school system in Pakistan.

Curriculum at the school level. The population education goals and objectives developed during the National Workshop on Population Education organized in March 1974 were reviewed. General, as well as specific behavioural objectives for population education were developed by the National Committee on Population Education. These objectives were further broken down for primary, middle, lower secondary and higher secondary school levels. In the light of the new behavioural objectives the curriculum specialists identified relevant concepts and appropriate learning activities and incorporated them into various subjects such as Urdu, social studies, general science, health and physical education at the primary school; social studies, general science, home economics, health and physical education at the middle school; and Urdu, social studies, health and physical education, general science, civics education, English and geography at the lower secondary school levels.

The population concepts for inclusion in Pakistan studies have been identified. However the breakdown by stages and grades for adoption and incorporation in the respective textbooks has yet to be done. A draft curriculum in nursing and first aid for grades VI to X has also been prepared and is planned to be submitted to the National Committee for approval. At the higher secondary school level (grades XI-XII) two topics in Urdu have so far been developed and the rest are in progress.

Curriculum for teacher training. The National Committee on Population Education prepared a curriculum for the training of primary (PTC), middle (CT), and lower secondary (B.Ed.) school teachers which was used in training the master trainers. Courses entitled 'School community and population education' and 'School, teacher and society' were developed to complement the pre-service teacher training curriculum.

Textbooks and other instructional materials development.

Textbooks. The textbooks in Pakistan were written in 1975 following the concepts and guidelines provided in the new curricula. Since the population education curricula was designed later on, the authorities rushed to ensure that the approved population education concepts were incorporated in the respective textbooks before publication. They succeeded in introducing population education concepts into the textbooks up to grade X. These textbooks were used in the school for about two years and subsequently revised and reprinted. However, no efforts were made to review the books to determine if the required population education concepts were incorporated in the reprint. In addition, books used at PTC, CT and B. Ed. levels for teacher training were published and are being used in teacher training colleges. The population content of these books was also not pretested.

Model lessons. The curriculum development specialists prepared model lessons on the integration of population education with social studies, Pakistan studies, Urdu, health and physical education, nursing and general science for the guidance of textbook writers and teachers. Besides these model lessons, supporting materials such as a teacher's guide, national source book on population education and training kits have also been developed to orientate the master trainers in the training of elementary school teachers.

Correspondence units. The Allama Iqbal Open University has developed a 24 unit course to orientate primary school teachers in the philosophy and content of new curricula provided for in the new education policy of Pakistan. The course is being offered to all primary school teachers in Pakistan through correspondence, radio, and television. Two out of the 24 units are on population education.

Supplementary reading materials. The Population Planning Division of Pakistan and the Family Planning Association of Pakistan periodically develop materials which serve as supplementary readers. The materials met resistance from the teachers as they were loaded with family planning concepts. Nevertheless, it must be acknowledged that these two organizations are the only ones producing reading materials in population education. Otherwise there is a dearth of any supplementary reading materials in this area.

Resource materials. The National Bureau of Curriculum and Textbooks in collaboration with Unesco Regional Office for Education in Asia and the Pacific and the Population Division of Pakistan developed a National Source Book in Population Education, a Teacher's Guide and training kits to assist curriculum developers and teacher trainers in promoting population education.

In-service training. An orientation programme for teachers started on a limited scale after the inception of population education in Pakistan. However, a regular training programme was not initiated until recently when the curricula for primary, middle and lower secondary school levels were finalized. There are at present about 200,000 school teachers at these levels and the task of training them through conventional means of institutionalized training is a big task. To cope with the situation, the Government decided to train master trainers who could, in turn, train teachers in their respective institutions. They trained 60 master trainers selected from different training institutes throughout the country. These master trainers in turn trained 1,500 teachers. The Population Planning Division through its Research and Training Centre, Lahore, has also carried out a series of three day orientation courses, at the district level, for primary school teachers throughout the country.

Research and evaluation. This is one of the most important aspects of the programme. Unfortunately it is not given the priority it deserves. In Pakistan very limited research and evaluation activities have been carried out in population education. The curricular content and the model lessons incorporated into the textbooks were never pre-tested for validity and reliability.

However, some research and evaluation projects have been undertaken periodically by certain organizations to study the effectiveness of some of the family planning programmes. The government has also developed two case studies namely: Development of Out-of-School Population Education Programmes in Pakistan, and Co-ordination of Population Education Policies.

Future plan of population education

In order to ensure systematic and comprehensive coverage of population education through the existing formal and non-formal education programmes the Government of Pakistan in collaboration with UNFPA and other bilateral and multi-lateral funding agencies is planning to undertake various population education activities during the period 1981 to 1984.

National objectives for population education. The general goals of Population Education in Pakistan are to enable learners to acquire the knowledge, skills, attitudes and values necessary to: (a) understand and evaluate the prevailing population situation, the dynamic forces which have shaped it and the effect it will have on the present and future welfare of themselves, their families, communities, societies, nations and the world; (b) make conscious and informed decisions (based on their understanding and evaluation); and (d) respond (either by an intention to act or by an action itself) to population situations and problems in a conscious and informed manner.

Long-range objectives of population education. To achieve the above-mentioned general goals, the following population education objectives have been identified:

1. To enable the learners to appreciate the implications of rapid population growth for vital sectors of the economy–agriculture, housing, health, education and communications;
2. To enable the teacher and field worker to assume a leadership role in creating awareness amongst the students of various levels and out-of-school youth and adults, about the challenges of population increase in the world, particularly in Pakistan, with its implications for the socio-cultural and economic development of the country;
3. To develop an understanding amongst educational administrators, planners, supervisors and educators at various levels about:
    a) the small family size being desirable and acceptable,
    b) the relationship between family size and the present and future quality of life of individuals, family and community,
    c) the fact that family size depends upon the personal discretion of the couples rather than being predetermined by nature,
    d) the Government's policies and plans on population;
4. The relationship between health of mothers, their children and family size; and
5. The need to institutionalize population education at all levels of formal and non-formal education.

Activities under the formal population education programme

1. Development of content outlines on population education for various levels/subjects within the framework of the approved national curricula;
2. Orientation of textbook writers and subject specialists and preparation of instructional units on population education;
3. Development of teachers' guides for teachers of various levels;
4. Orientation of educational administrators, planners, teacher educators and teachers at various levels;
5. Development/provision of training packages for teacher education at various levels, (packages comprise about ten film strips, five flip charts, five population maps and graphs);

6. Introduction of population education as an elective subject at B.A. and B.Sc. level and as a paper offered for the M.A./M.Sc. programme;
7. Creation of population education cells at the federal and provincial levels, (the curriculum wing of the Ministry of Education, Allama Iqbal Open University and four population education cells at provincial headquarters); and
8. Orientation of key personnel involved in administration and co-ordination of the population education programmes.

In addition to these activities a separate set of activities in the form of a sub-project on the introduction of population education through agro-technical and vocational subjects education has been developed. An attempt has also been made to develop an orientation programme for the students of polytechnics in the country. The activities in these two sub-projects include curriculum and materials development and personnel training.

Strategies for implementation. As a prerequisite to the formulation of the National Population Education Project, the broad strategies for implementation cover the following areas:

Identification of the target group. This includes students of all levels, primary to tertiary; teachers of all categories; educational planners, curriculum experts, textbook writers and other key personnel; and teachers of medical colleges and medical college students.

Instructional strategies. A national programme of population education will have to pay conscious attention to the identification of the instructional strategies to be used with different target groups. These are the infusion approach in subjects at the primary school and intermediate stage and the separate subject approach for graduate level, university and teacher training programmes.

Federal and provincial implementation strategies. In the execution of the Population Education Programme, some activities will be conducted solely at the federal or provincial level while others will be managed through a collaborative effort of the Ministry of Education, the provincial Departments of Education, the Allama Iqbal Open University, the University Grants Commission and the Population Division.

Federal level implementation

The major components of the programme will be:

a) Curriculum and material development;
b) Training of key personnel; and
c) Evaluation and monitoring of provincial projects.

a) *Curriculum and material development.* Curriculum development falls within the purview of the Federal Ministry of Education, but it will be developed with the involvement of educationists and curriculum planners from all four provinces. Different categories of expertise will be systematically and carefully brought to bear upon the content development of population education for various levels. In materials development, the teacher's guide for primary, middle and secondary teachers will be a federal activity, including review, try-out and evaluation. The Federal Ministry will also serve as the national review and editing committee for the textual materials on population education developed by the provinces and also develop a Teaching Kit for Population Education.

b) *Training of key personnel.* This involves educational planners, textbook writers and curriculum experts, directors of curriculum bureaux, chairmen of textbook boards and district education officers. This training/orientation includes clarification of conceptual issues, communication of perspective and study of methodologies of programming and instruction, teacher training and text development.

c) *Evaluation and monitoring of provincial projects.* Evaluation will be built into each project component. Periodic visits, reports and questionnaires will be used and assessment and evaluation by outside agencies will also be made. Self-evaluation skills will be developed among the project staff at all levels.

Provincial implementation

a) *Textbook review and development of text units.* This is a provincial function and will be accomplished under the aegis of the Department of Education and the Textbook Boards in all four provinces.

b) *Teacher training.* This will mainly be the function of the Provincial Departments of Education, through their Teacher Training Institutes, Extension Centres and Colleges of Education.

Institutional framework. The Population Division will be the planning and co-ordinating body. Implementing units will be located at the federal and provincial levels to conduct the programme activities within the stipulated time frame and in collaboration with the other agencies/departments involved in population education. The Federal Ministry of Education will implement activities for developing core integrated curricula in population education, develop teachers' guides and audio-visual aids, provide the mechanism for monitoring, supervision, and resource help whenever and wherever required. The Allama Iqbal Open University will conduct long distance training of teachers and master trainers in some provinces and undertake orientation of key personnel.

A National Steering Committee will be set up at the national level with the President's Adviser on Population as the Chairman and will meet at least twice a year. This Committee will have the authority for the overall co-ordination and implementation of the National Population Education Project.

A National Implementation Unit for Population Education will be established at the federal level and will be located at the National Bureau of Curriculum and Textbook, Islamabad. It will maintain liaison with all the agencies involved in the promotion of population education; plan, implement, organize and supervise population education programmes at the national level; work as a member of the various national subject committees for curriculum development; organize and conduct orientation/training courses at the federal level; provide technical and resource help to population education programmes at the provincial level; ensure the timely release, distribution and utilization of funds; and conduct continuous as well as final evaluation.

The Provincial Implementation Units will maintain a liaison between the Planning and Development Department, the Population Programme in the provinces and other agencies working in this field. They will schedule the activities under the project, co-ordinate its various components, ensure the timely release and utilization of funds and maintain records of the progress of the projects, with feedback to the evaluation personnel. One unit for implementation will be established at the Allama Iqbal Open University.

The existing educational infrastructure at the provincial and district levels will be utilized, including the services of District Education Officers, Assistant Education Officers, Supervisors, Bureaux of Curriculum and Textbook Boards, Teacher Training Institutes and Extension Centres.

Non-formal population education. Non-formal population education relates to out-of-school youth and adults, who constitute the majority of

Pakistan's population. With a literacy profile in Pakistan of 23.7 per cent at the national level dropping to 14 per cent in the rural areas this educational programme becomes all the more vital.

Activities under non-formal population education programme. The programme coverage in the non-formal sector with special reference to the target groups to whom the training has to be provided is very comprehensive and includes: (a) employees of population programmes; (b) employees of other nation-building departments; (c) members of selected groups of community and voluntary agencies; (d) functionaries in institutionalized sectors and industrial workers; (e) students at agro-technical pilot schools, polytechnic institutes (men) and vocational institutes (women); and (f) married couples.

In view of the general characteristics of the non-formal sector it is evident that non-formal population education has to be planned and implemented by a variety of government, semi-government and voluntary organizations. An attempt is being made to develop, in consultation with participating organizations, a programme of population education which could meet the learning needs of diversified audiences in the entire non-formal education sector. However, it has been agreed that there are some common programming activities which could form the basis for developing population education programmes to be integrated into the ongoing and new programmes of various nation-building departments. The common programming areas identified were: (a) planning and co-ordination; (b) curriculum development; (c) materials development; (d) personnel training; (e) research and evaluation; and (f) documentation and clearing house.

Under each of these common areas, a set of activities is to be identified so that the people who frame and implement population education programmes will be able to integrate them into various development programmes. In addition, proposals are being discussed for introducing population education through rural home economics and instituting a population education component in the B.Sc. (Hons.), agri-degree programme for Barani Agriculture College, Rawalpindi.

Strategies and institutional framework. The non-formal population education programme can be filtered through the ongoing educational programmes of various government, semi-government, autonomous and voluntary organizations, while the other areas of diffusion could be the 1,000 family welfare village clinics scattered throughout the country.

The backbone of the non-formal population education programme would be inter-personal communication. Suitable orientation and training programmes can carry this education to the grassroots level. The Population Division could assist these agencies by providing learning materials, by conducting training programmes, and by catering to the requirements of special target groups. Ultimately this non-formal population education programme will have to be institutionalized within the respective agencies, with the Population Division providing a co-ordinating mechanism and playing a supportive role.

The Ministries and Departments which could be encouraged to take up projects for integrating population education concepts into their ongoing and new educational programmes are those of Education, Rural Development, Health, Social Welfare and Local Government, Women's Affairs and Youth Affairs. Others are the University Grants Commission, the Population Division, Voluntary Agencies and Ministries or Agencies like Police, Small Industries, PIA and Railways.

Programme implementation

In its capacity as the planning and co-ordinating body the Population Division has held detailed meetings with all relevant provincial departments. Each of the provinces has drawn up detailed plans of action for the period 1980-83, listing their proposed activities/projects in non-formal population education. These are briefly mentioned here.

The adult literacy-education programmes will be strengthened by integrating population education concepts. This is aimed at securing an improvement in the quality of life of the individual, family and community by providing additional facilities and personnel for population education in the ongoing and new programmes. In the activity under Basic Health Education through Teachers, necessary inputs in terms of information/orientation/training will be provided to teachers to enable them to fulfil the much needed community obligation of providing knowledge regarding basic health rules. This will include food and nutrition, health, hygiene, preventive health, home nursing and population.

By the end of 1982 there will be a working force of almost 8,500 teachers and masters trainers, all of them with an academic background of the population issues in Pakistan. The Population Division, through the Provincial Departments of Education will locate and enroll 1,000 volunteers from all over the country. These teachers will meet with parents, community members and leaders and organize programmes centering around population and other allied areas like health, nutrition and child care.

The parents associations will provide an educational venue for parents, around subjects of interest and relevance to them such as child care, farming techniques, community health, sanitation, the kitchen, gardening and population education. This programme is to be conducted on an experimental basis in selected agro-technical/pilot schools throughout the country. Additionally, students will be given the opportunity to develop a deeper insight into population issues by applying population concepts to practical farming activities.

The polytechnic institutes for men and vocational institutes for women will be used as forums for imparting population education to the students. The population education provided through these institutes will have to pay greater attention to specific learner needs than is the usual case with normal school programmes. The content will be designed in such a way that it complements the ongoing programmes of various institutes and does not constitute an irrelevant appendage or a disruptive force. Rural youth will be trained for gainful living in the rural areas through an experimental project at Shahkot, where a polytechnic for boys and girls will be established.

Supplementary reading material will be developed for children of different age groups and distributed through commercial bookshops, school libraries, the National Book Foundation and grocery stores in villages. This will be supplemented by cartoons or comic strips in newspapers, special comic books, and a cartoon puppets series, based on population issues, for children's programmes on television.

The volunteers of the Farm Guide Movement will be involved in population education programmes. Their existing training course will be revised to incorporate population concepts. They will be provided printed materials and adequate support to organize community meetings. Family physicians and general practitioners will be provided training in population and contraception through correspondence courses of Allama Iqbal Open University.

There will be need for co-ordination at the central provincial, and field levels of the activities of all the agencies participating in population education, to minimize duplication. This will entail:

1. Establishment of national and provincial committees of non-formal population education, with representatives from all participating organizations; and
2. Establishment of technical committees within departments and agencies conducting non-formal population education programmes. This will help to identify mechanisms for developing effective linkages between formal and non-formal population education so as to make maximum use of the existing manpower and institutional resources.

A central implementation unit within the Population Division will be established. The provincial units will be located at the zonal offices. One part of the provincial unit will be exclusively responsible for non-formal population education. Personnel for the implementation units will be drawn from existing staff, given additional training and redeployed for the execution of the population education programme.

Problems

As the planning and implementation of population education programmes continues in Pakistan, problems have had to be faced and overcome. Some are mentioned here.

1. Population education is a new area in Pakistan and thus faces the earlier problem of being perceived as another name for family planning. Intensive efforts are being made to clarify the concept, scope and nature of population education among individuals and agencies through seminars, conferences, workshops and meetings.
2. The lack of systematic and consistent planning for integrating population education in the formal and non-formal education sectors and the lack of trained manpower have been two of the biggest hurdles for the promotion of population education. Thanks are due to the international agencies such as Unesco and the consistent efforts of the Population Division and the Family Planning Association of Pakistan which have helped the Ministry of Education create a reservoir of trained people who are now succeeding in implementing the programme in a more systematic manner.
3. Realizing the lack of funds and personnel for institutionalizing population education the government is now trying to mobilize resources from all possible avenues to meet the requirements.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

PHILIPPINES

by Simeon H. Siongco

Introduction

Being aware of the connection between population and development variables, the Philippines has instituted a population programme within the framework of its development goals.

The population characteristics and situation of the country provide a clear perspective of the government's concern with the population problem and how population education has assumed an important role in the population programme.

Population situation and characteristics

The Philippines, with a land area of about 300,000 square kilometres, has a population of 47.9 million as reported in the 1980 census. This was in spite of the decline in the annual population growth rate from 3.1 per cent during 1948-1970 to 2.8 per cent in 1970–1975 and 2.4 per cent in 1980. The average family size also showed a decrease from 5.6 children per family to 5. This change nevertheless did not alter the country's position as one of those having the fastest population growth in Asia and the world.

Added to this is the uneven distribution of the Philippine population. Manila is the most densely populated city with 7,646 persons per square kilometre. The average national density is 160 persons per square kilometre with 68 per cent of the population living in the rural areas. Its population is young. Forty-three per cent are under 15 years of age. The average life expectancy at birth is 61 years and rising.

School population education programme

Administrative organization. The Ministry of Education and Culture established the Population Education Programme (PEP) in July 1972 as a response to the country's population problem and as the education sector's contribution to the implementation of the national population programme. The PEP was established in co-operation with the National Economic and Development Authority and the Commission on Population with the assistance of the United Nations Fund for Population Activities (UNFPA) and Unesco.

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The PEP is an independent unit directly under the Ministry of Education and Culture and has a full complement of programme officers in the central office to take charge of curriculum development, training, and research and evaluation.

Goals and objectives. Through the integration of population education in the curricula of the elementary, secondary and teacher training levels, it is expected that:

1. The Philippine family size norm will be reduced;
2. The decisions made by the Filipinos on population matters at both the personal and social levels will be more responsible; and
3. The education programme provided to students will be more relevant to their felt needs.

Specifically, the objectives of the PEP are:

1. To develop curriculum materials in population education for elementary, secondary and tertiary levels, including a course in teacher education and a prototype population course in the arts and sciences;
2. To provide instruction on population education to students of the three target levels by training 187,000 elementary teachers (75 per cent of the total), 15,600 secondary teachers (25 per cent of the total), and 360 teacher-training instructors in the country to implement the designed courses; and to provide the necessary basis for the institutionalization of population education in the formal school system in terms of content of approved textbooks, official syllabi for courses, and pre-service education for teachers.

Curriculum and materials development. Innovations in the school programme, such as the introduction of population education, create a corresponding need for new curriculum materials for both teachers and pupils. In response to this need, the curriculum materials development at the PEP is an interactive process among the multidisciplinary and multiethnic members of the curriculum, training, and research components. It is interactive in the sense that the curriculum staff prepares the materials; the training staff trains the teachers to utilize the materials; and the research staff takes care of the research studies, gathers baseline data for the preparatory stage and feedback for the improvement of the curriculum materials.

Once the definition of population education was prepared it served as the framework for identifying the main ideas and the facts from the content of population education. Five major areas of content for population education were selected after considering the nature of population education, the needs of society, and the socio-cultural orientation of the target clientele. A scope and sequence, organized around the major areas of demography, determinants of population growth, consequences of population growth, human sexuality and reproduction, and planning for the future, was developed from which were drawn the specific contents that could be integrated with selected subject areas in elementary and secondary schools and tertiary institutions.

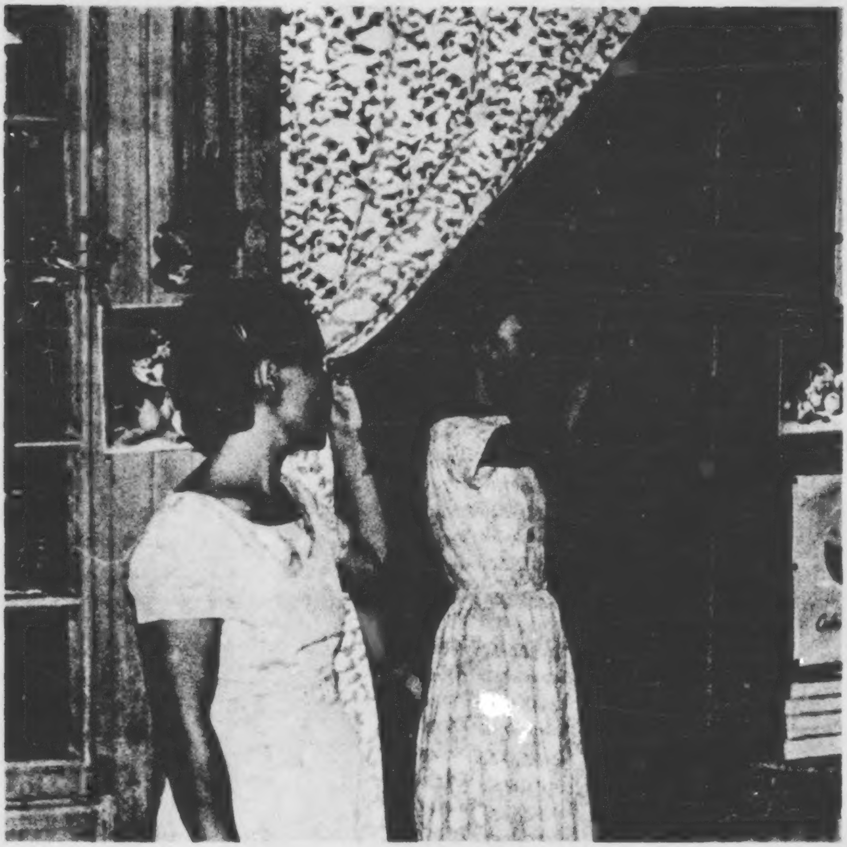
Elementary level. The PEP has adapted a scheme which is a combination of the infusion and the unit method to introduce population education in the elementary school curricula. An analysis of current textbooks used in the schools indicated that the subjects containing population content and providing a good setting for teaching population education are social studies, health, science, home economics, and mathematics. The syllabus of each of these five subject areas was examined in order to determine the most appropriate unit for the infusion of population education content. The PEP then prepared sub-units containing population education concepts that would enrich the appropriate related unit concerned.

The teachers' guides in population education for the elementary level consist of six sub-units each for social studies, health, mathematics and science and two sub-units for home economics.

Secondary level. For the secondary level, a combination of the infusion approach and the sub-unit method was tried, the scheme being modified in accordance with the suggestions of teachers in the field. The present scheme is a self-contained unit which teachers can use independently of the guides in the respective subject areas. This was done because guides were lacking in the subject areas being used as the delivery system for population education. The teachers' guides in population education for the secondary level consist of four units each for social studies and health, one for science, two for mathematics, and three for home-making arts.

In addition to the sub-units, an elective course guide in population education has been developed and is now being offered in Philippine secondary schools as a separate course for one year in either the third or fourth year. To provide the Muslim areas with teachers' guides relevant to their needs, conditions, and culture, appropriate revisions were made at both the elementary and secondary levels.

Tertiary level. Curriculum materials have been prepared for teacher training institutions and colleges of arts and sciences. The PEP prepared a



Population Education Course Syllabus for a 3-unit course in teacher education in 1973 in anticipation of offering population education. A resource book which contains compilations and readings was also developed to serve as reference material for the course.

The PEP, using a selected group of college instructors, identified and determined the population education concepts that could be integrated in sociology, political science, ethics, history, economics, psychology, and health education. For arts and sciences, prototype population education curriculum guides were prepared by participants from ten universities in a seminar-workshop. This was done to remedy the lack of curriculum materials in population education for the college level.

Pupil materials. Pupil materials were designed and pretested for suitability of content and vocabulary at the grade levels for which they were intended. Four booklets were prepared for the elementary level on the family, population, migration, and consequences of rapid population growth.

The prototype supplementary reader for grade III, *Magandang Bukas* (better future), aims to develop reading skills among the pupils as well as to deliver the population education messages through the medium of stories, poems, and dialogues. These stories and poems carry as themes the population education concepts of birth, death, migration, local beliefs and practices related to fertility; and the consequences of family size and population growth on health, the standard of living, educational opportunities, and environmental resources. The reader is accompanied by a teacher's guide to help the teacher manage the reading activities for each story/poem/dialogue in order to achieve an optimum level of knowledge gained and attitudes changed.

The PEP in co-operation with the Unesco Regional Office for Education in Asia and the Pacific (ROEAP) undertook the preparation by selected teachers of eight self-learning units (SLU) in population education. These SLUs are primarily focused on the causes and consequences of rapid population growth (RPG). They were originally written in Pilipino.

For the secondary level, three students' reference materials were prepared on economic growth and demographic transition, values regarding responsible parenthood, and the relation of rapid population growth and health.

Teacher training for population education

In-service teacher training. The original target of the in-service teacher training programme was to train all teachers at the elementary, secondary and tertiary levels who would be responsible for population education sub-units or courses and training college instructors. A two-tiered training scheme was organized which used divisional supervisors as trainers of the teachers, principals and supervisors within each district. The supervisory personnel were trained for five weeks at the national level by the PEP training staff to prepare them to lead the one-week district level in-service training courses for the school personnel.

The development of each in-service training course demanded close collaboration between all three units of the PEP. The course and its accompanying training manual which were prepared by the PEP training unit with the assistance of a foreign consultant, were twice pilot-tested in six geographically diverse school divisions and revised by the programme's staff and selected trainers before their finalization.

Strategies for in-service teacher-training. The training scheme proved to be too slow and as a result some gaps and discontinuities marked the early introduction of population education into schools. Although the programme met its target and trained all supervisory personnel, many of them were not able to implement the in-service training because of transfers and retirements.

In view of the shortcomings of the hierarchical strategy, the programme's training unit restructured its training scheme. Instead of supervisory training teams directly training school teachers; district supervisors, elementary school principals and department heads became 'middle level trainers' to train classroom teachers in their respective elementary and secondary schools. The supervisory trainers conducted three-day orientation seminars for district supervisors and elementary school principals who had already attended an in-service training course, and a five-day training course for supervisors and principals, particularly at the secondary level, who had not yet been exposed to population education in-service training.

To further accelerate the training of teachers and as part of the programme's effort to explore alternative schemes and innovations in training in order to generate training models in population education, PEP also adopted the use of self-instructional modules to train teachers in isolated villages and island municipalities, teachers in private schools who could not leave their classes for a prolonged period of time, and newly-employed teachers.

Pre-service teacher-training. As originally designed, population education was to be introduced into the pre-service training of teachers through five-week summer training courses for instructors, representing all the nation's teacher education colleges.

The implementation of population education in pre-service teacher training also encountered a number of difficulties because of the magnitude of the tasks involved in institutionalizing the population education course. Consequently, the PEP undertook to promote the awareness of population education among administrators and faculty at colleges of education and designed an alternative training scheme for college instructors. A one-day orientation seminar for college administrators was used to discuss plans for the full implementation of population education in teacher education institutes. As a result of the interest generated by this seminar, the three-unit, one-semester course in population education was introduced into the teacher training curricula of most participating institutions. Awareness of population education in the teachers' colleges was also promoted by a series of three-day seminars, conducted by the programme and participating colleges, in collaboration with the Mobile Team in Population Education of the Unesco ROEAP, Bangkok.

To accelerate the training of instructors for these courses, PEP switched to a scheme which trained teachers in population education at summer institutes offered by two teacher education institutions where they earned graduate credits for their attendance. These courses had more appeal than the original programme approach and they were accepted as part of the regular programme within the curricula of the participating teacher education colleges.

The expansion of training. Having designed and implemented the introduction of population education PEP turned its attention to a widening network of target groups. These included students attending short-term courses in vocational schools and teachers of vocational secondary and post-secondary schools, in consultation with vocational education officials in the regional offices.

The programmes were further diversified through the establishment of four regional centres of population education in 1976–1977, in line with the administrative reorganization and decentralization of the educational system. These centres, located at the University of Northern Philippines, the Bicol University, the West Visayas State College and the Leyte State College, in four different regions of the country, conducted training programmes for faculty members of colleges and universities, youth leaders and field workers of government and non-government agencies.

As a result of the regional training centres' activities there has been a rapid spread in the institutionalization of population education at the tertiary level as well as within non-formal and out-of-school education. There is a graduate training programme in population education at the University of the Philippines for the staff of the regional centres (through PEP fellowships) and additional training programmes at the Population Center Foundation.

Research and evaluation

Research. At various stages, studies were undertaken to assist in the determination of content; to better understand the targets of population education, the nation's youth, and its agents, the teachers; to measure its educational effectiveness; and to provide guidance in the introduction of population education to non-formal educational channels.

The 'Analysis of population content of current textbooks', the first study undertaken by the programme's research unit, was a diagnostic study which examined the extent and treatment of population matters and human sexuality within all elementary and secondary texts. It showed that population content counted for only 2.1 per cent of the material in the nation's textbooks and helped to confirm the need for more attention to population issues in the curriculum. The study also pointed to the possibilities of linkages with existing material and indicated where additions and amplifications were required. In addition, it contributed to the formation of the scope and sequence of the population sub-units by identifying the topics in the syllabi of social studies, science, health science, home economics and mathematics that might serve as natural plug-in points for the integration of population content.

The 'Study of the reactions to controversial content' was undertaken to measure the extent of opposition among parents and teachers to controversial aspects of the material dealing with human sexuality and reproduction and to solicit their ideas regarding the appropriate level for the introduction of this content. By organizing assemblies of teachers and parents in all regions of the country, the programme was able to tap the opinions of a large, broadly based sample. Strong support for the inclusion of all aspects of the content was expressed by the 6,644 teachers and parents who attended these forums, with about 90 per cent favouring the inclusion of sexual terminology and illustrations of the reproductive system and an equally high percentage favouring discussions of family size norms and the inclusion of information about contraceptive devices.

A national exploratory study conducted by the Programme on Family Size Preference among Filipino Adolescents was undertaken to provide information concerning the ideas and values related to family size among in-and out-of-school, rural and urban adolescents, and the various factors that contributed to their formation. This survey of approximately 4,500 adolescents between 11 and 16 years of age showed that a majority of them had given thought to questions of family size and that they had been influenced by both parents and peers.

Two anthropological studies were undertaken by the programme to further explore the formation of concepts, attitudes and values related to population issues. The first, in a series of interviews over a ten month period, gathered ideas about family size and human development in different linguistic regions. The second, undertaken for a two-year period through the funding of the Ford Foundation, investigated the practices, beliefs and attitudes relating to birth, adolescence, courtship, marriage and death among samples of 12 and 17-year youths from 24 communities in different ethnolinguistic groups. It provided information for eight monographs intended to assist curriculum writers at the local level develop materials for teachers and pupils suited to local needs and cultures.

There were also several small-scale studies to measure the effectiveness of population education materials for students, for teacher trainees and for elementary school pupils being taught by untrained teachers. The findings confirmed the effectiveness of the materials.

Formative evaluation. The development of population education in the Philippines has been, and will continue to be, an ongoing dynamic process in which curriculum development, teacher training and research form interrelated and mutually reinforcing components of a unified strategy. Sub-units, courses and materials designed by the Curriculum Development Unit have been examined and revised through feedback from teacher-training activities and field-testing and further amended and improved through follow-up activities which have included field visits, surveys, workshops, and conferences.

Out-of-school population education

The PEP has done much to promote population awareness amongst youth through the formal school system. These efforts, however, cover only 61 per cent of the country's population of school-going age.

There is growing concern for the seven million out-of-school youth and adults who also have a right to the necessary knowledge and skills that will make them informed, intelligent, and productive members of society. To help achieve this objective, PEP prepared two sets of reading materials to show the relationship between family size and the socio-economic aspect of life. One is an illustrated factual reader and the other is a series of short stories about a large family. These reading materials are intended for use in the Barangay High School Community Pilot Centers.

Organizations involved. Population education for the out-of-school youth and adults is undertaken by various organizations and agencies five of which are government agencies, namely, the Ministry of Education and Culture, Ministry of Social Services and Development, Ministry of Agrarian Reform, and the Ministry of Local Governments and Community Development. The non-government agencies include the Family Planning Organization of the Philippines, the Foundation for Youth Development in the Philippines, the Rizal Youth Development Foundation Inc., the Philippines Rural Reconstruction Movement, the Philippine Youth Welfare Co-ordinating Council, and the Responsible Parenthood Council.

Target groups. Population education and sex awareness sessions are conducted among the 13 to 24 year old group by the Bureau of Youth Welfare of the Ministry of Social Services and Development. The 14 to 24 year old unemployed or partly employed out-of-school youth are the target of the Family Planning Organization of the Philippines. People aged 15 to 35 in the rural areas are the target of the Foundation for Youth Development in the Philippines. The Bureau of Agricultural Extension of the Ministry of Agriculture runs a project called Integrated Planning for Improved Living for the Homemakers, especially for rural families. The Philippine Rural Reconstruction Movement serves the out-of-school youth and adults in one particular province. The Ministry of Local Governments and Community Development family planning projects are designed primarily for the barrio council units. The improvement and achievement of quality of life of the low income producers of agricultural and aquatic products is taken care of by the Ministry of Agrarian Reform. The Office of Non-Formal Education of the Ministry of Education and Culture integrates population education into their non-formal education programme for out-of-school youth and adults.

Materials development. The agencies involved in population education programmes in the Philippines have embarked on various scales of materials development and production. The materials vary in sophistication and content depending on the needs of specific audiences. They include manuals, handbooks, flip charts, flash cards and magazines for the implementors, and leaflets, self-learning modules, comic books, posters, spot announcements, jingles, pamphlets, films, filmstrips, sound slides, puppets, and scripts for community theatre, folk media and drama.

Several approaches have been utilized in the development of population education materials for the out-of-school youth. Team approaches such as workshops and writers' committees have been adopted by many agencies. Individual approaches such as commissioning individual writers or staff members of an organization have also been tried. Some organizations which lack manpower resources to develop their own materials have resorted to the adoption or adaptation of materials prepared by other agencies, as well as inviting curriculum writers and experts to serve as writers and resource persons in the preparation and evaluation of their own curriculum materials. Some evaluation of these materials has been carried out by the various organizations concerned.

Accomplishment

The PEP has developed a substantial amount of curriculum population education material for the elementary, secondary, and tertiary levels, both for teacher use and student reference. In line with the bilingual policy of the MEC, most of the teachers' guides are translated into Pilipino. Revisions were made to update demographic data as well as to make the curriculum materials more appropriate to the local conditions and cultural needs of minority groups.

Through the integration of population education in all areas of curricula and the involvement of mass media and other partner agencies, the country's population growth rate and the family size norm have been reduced.

Impact on target audience

The PEP administered achievement tests from 1 to 15 March 1981 to two school divisions in each of the 13 MEC regions to assess the learning outcomes of elementary school pupils and secondary students in terms of knowledge gained and attitudes changed toward population and population related matters. Health education, science, home economics and social studies were the subject content of these tests held in two classes each of grade IV and VI, and 4th year in every represented school. Significant knowledge gain and attitude change were noted in the study.

Problems faced and strategies used to overcome them

In spite of financial assistance from the UNFPA, the integration of population education has not been maximized in all school curricula because of insufficient instructional materials. This is aggravated by the high cost of printing and reproduction of curriculum materials. Again, the rising cost of shipment and distribution of materials to the 13 regions compounds the problem.

With the revised training scheme and the modular approach as alternative training schemes, greater numbers of teachers have recently been trained. However, their training could not be used to advantage in view of the lack of teaching guides and other teaching aids and devices.

Certain measures have been taken to overcome these problems. To meet the growing demand for instructional materials, PEP has made representations to POPCOM and the Population Center Foundation for more funds to reprint teachers' guides for both elementary and secondary levels. Provisions were made in the Second Country Project: Regionalization of Population Education for the revision and adaptation of curricular materials. Seminars have also been scheduled in the regions for the development of competencies in writing curricular materials.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

REPUBLIC OF KOREA*

Population situation and characteristics

The Republic of Korea comprises 98,000 square kilometres in the southern half of the Korean peninsula in eastern Asia and is commonly known internationally as South Korea. It is separated from the People's Republic of China to the west by the Yellow Sea (West Sea) and from Japan to the east by the Sea of Japan (East Sea). A demarcation line at approximately the 38th Parallel divides the Republic of Korea from the Democratic Republic of Korea to the north. Much of the Republic of Korea is occupied by low mountains. There are numerous islands, particularly along the south and west coastlines.

The climate is temperate with abundant rainfall. Spring weather is mild, summer is hot and wet, autumn cool, and winter cold with some snow.[1]

In 1979, it was estimated that the population of the country was about 37,605,000. The rate of population growth was then about 1.6 per cent. The total fertility rate was 3.0. Life expectancy at birth was then about 68.9 while 35.8 per cent of the population were below 15 years of age.[2] About 55 per cent of the population live in urban areas, 30 per cent in Seoul and Pusan, and the other 25 per cent in other cities.

The *per capita* Gross National Product (GNP) was estimated at US $1,512 in 1981. The annual GNP growth was estimated at 9.2 for 1977-1981, and the growth rate of *per capita* GNP was then estimated at 7.4.[3] The relatively high rates meant economic progress for the Republic of Korea.

Population education: formal and non-formal education system

Introduction

The Republic of Korea has long realized that unplanned population growth strains national development efforts, so in 1961 a national family planning policy was adopted. In 1962, the national family planning

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* The paper is largely based on the *1980 Needs Assessment Report*, prepared by the Regional Advisor on Population Education.

[1] *1980 UNFPA Needs Assessment (Preliminary report).*

[2] *ESCAP 1979 Demographic Estimate for Asian and Pacific countries.*

[3] *1980 UNFPA Needs Assessment (Draft report).*

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programme was launched. In 1974, a population education programme was started by the Ministry of Education to complement family planning programmes. Population education represents the education sector's response to the call for joint action in coping with population caused problems. The role of population education is specially emphasized as the means for overcoming 'the recognized limitations of a medical-biological approach in effecting further population control when it runs counter to the traditional values generally held in a society'.[4] The Ministry of Education pointed out that:

> The development of population education in the Republic of Korea, as is the case in most developing countries, was expedited by the fact that the fertility behaviour of the youth and adults is rooted in their values and attitudes towards population matters, and simple family planning activities, mostly technically oriented, are insufficient to tackle the (population) problem.[5]

National development goals

The Population Education Programme of the Ministry of Education was meant to help implement the Government's population policy in the context of the Five-Year Economic Development Plan, 1977–1981. The plan states that population growth will be maintained at an annual growth rate of 1.6 per cent by reducing the birth rate and encouraging out-migrants. The plan recognizes the importance of changing attitudes towards population matters. In this connection, the plan states that the following steps will be taken, namely:

1. A positive attitude towards family planning will be encouraged; the traditional son-preference attitudes will be discouraged.
2. Awareness of the need to reduce the birth-rate will be increased by considering population concerns in all government policy measures.
3. The mass media will be asked to assist in motivation campaigns and population education. Education and information on family planning will also be disseminated through schools, business houses and factories.[6]

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[4] Kim, Sooil and Kun Za Shin. *Objective elaboration of population education instruction.* Seoul, Korean Educational Development Institute, 1977.

[5] Unesco Regional Office for Education in Asia and Oceania. *Future directions of population education.* Report of a Regional Consultative Seminar. Manila, 14–21 August 1978. Bangkok, 1978. p. 75

[6] Republic of Korea. *The Fourth Five-Year Economic Development Plan, 1977–1981.* Seoul. p. 12

National development and education

The Ministry of Education states that:

> National development without education would be inconceivable. In this era of technology, economic progress must rely more than ever on the availability of quality labour. It is no exaggeration to say that a country's educational system will largely determine the extent of its economic development . . . While the importance of specialized skills and techniques cannot be disregarded in this age of science and technology, it should not be forgotten that skills are liable to become fast obsolete because of constant and rapid technological innovation. A more basic goal, perhaps, should be a balanced personality equipped with the basic repertory of scientific knowledge and information alert to changes and capable of adaptation to changing environments and demands.[7]

It is in the above context that population education has been conceived. Population education is also viewed as one of the renovating forces in education, consistent with the New Village Movement which was launched in 1972.

Population education content was not only meant to enrich but also make existing school subjects more relevant. The use of inquiry and values clarification approaches in learning about population concepts paved the way for opportunities for discarding rote memorization in favour of the process of discovery and inquisitive study, which is one of the main thrusts of the New Village Movement in Education.

Development of population education

As early as June 1970, the Central Education Research Institute (CERI) undertook studies in population education, with assistance from USAID and the Population Council. These studies were published under the title, *Curriculum improvements for population education in the elementary and secondary schools in the Republic of Korea.* The studies, amongst other things, revealed that: (a) the extent of knowledge about population problems by both teachers and students was far from adequate; and that (b) topics dealing with population problems occupied merely 0.37 per cent of the content of existing textbooks. The findings of the study pointed to the need for a supportive staff. At the inception of the programme, a Population Education Council, chaired by the Vice-Minister of Education was constituted. The Council was to advise the project on all matters relating to the programme. Advisory Committees for Curriculum and Materials Development, Training, Demonstrative College Programme, and Research and Evaluation were also constituted.

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[7] Republic of Korea. Ministry of Education. *Plan of operation; population education project.* Seoul, 1974. p. 1.

The Central Office for Population Education (COPE) implemented the activities of the programme through a variety of institutions representing a range of specializations and expertise. For example, the development of the in-school curriculum and instructional materials was entrusted to the Korean Educational Development Institute (KEDI), and that of the out-of-school curriculum and instructional materials to the Korean Institute for Research in the Behavioural Sciences (KIRBS). The training of primary teachers was done in collaboration with the 11 junior teachers' colleges, and those of secondary school teachers by 12 colleges of education of selected universities. The Demonstration College Programme was implemented through four universities; namely: Seoul National University, Ewha Women's University, Yonsei University and Korea University. Key education officials of various bureaux of the Ministry of Education, such as superintendents of city and regional school boards and principals of schools were involved in planning meetings and seminars.

National population education project

In 1974, a master plan for population education was developed with the help of the Unesco Regional Team on Population Education. The Population Education Project was signed between UNFPA and the Government in March 1974. The programme was formally launched in May 1974. The general aims of the programme were as follows:

1. To institutionalize population education as an integral part of the curriculum at all levels in the Republic of Korea, thereby assisting in the development of an insight into population problems and responsible decision-making and behaviour in population related matters.
2. To establish linkages between efforts of the educational system and those of other spheres of national activity in order to promote co-ordinated and meaningful action in relation to population issues.[8]

The general objectives of the Project are to help students to:

1. Acquire an understanding of both the concepts and phenomena of population;

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[8] Republic of Korea. Ministry of Education. *Education in Korea, 1979-1980.* Seoul, 1979-1980. p. 23-24.

2. Recognize the interrelationship between population components (growth, distribution) and quality of life;
3. Understand the interdependence of man and his bio-physical environment;
4. Examine critically the web of socio-cultural factors that lead to high fertility; and
5. Cultivate the capacities necessary for responsible parenthood.

These general aims and the general objectives were realized through a two cycle programming. The first cycle was covered by ROK/73/PO5, 1974-1977, and the second cycle by ROK/77/P15, 1978-1980. Both cycles were jointly funded by the Government and UNFPA.

Structure and strategies

The management of the Population Education Programme was entrusted to COPE which was set up in the Ministry of Education, under the overall supervision of the Vice-Minister of Education, who is the ex-officio Project Director. COPE is manned by an Executive Officer (part-time), a co-ordinator and a small staff.

Curriculum and materials development

Interdisciplinary integration. At the outset, the Ministry of Education recognized that 'there is no single discipline which readily offers a body of knowledge for population education.[9] Its content must be drawn from demography, population studies, the social and natural sciences. Hence, the assistance of selected experts in these fields was sought in preparing the conceptual structure in population education. The problem of appropriate strategies for introducing population education into the school curriculum was dealt with later. Three possible strategies were considered, namely: (a) separate course; (b) unit approach; and (c) integration. In view of the fact that the school curriculum was already overcrowded the separate course approach was ruled out. The unit approach and integration, as appropriate, were adopted. The unit approach would be used when:

1. Concepts within subjects could be better taught by being organized into a unit;
2. The population concepts within a subject take at least five hours of teaching;
3. The development of a population education unit within a subject does not change the nature of the subject; or

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[9] Byun, Yung Kye, et al. *Approaches to curriculum organization for population education.* Seoul, Korean Educational Development Institute, 1975. p. 11.

4. A unit is required to summarize the elements which have been integrated into other courses.

On the other hand, the integration approach would be used whenever a subject did not lend itself to the addition of a unit, or the population concepts required less than five hours of teaching time, or when the population topics were related to the subjects whose objectives are of the affective domain.[10]

Population education content has thus been infused in different subjects in the primary (grades IV and VI), the middle and high schools as follows:

Primary school : social studies, science, practical arts
Middle school : social studies, science, physical education, home economics
High school : geography, politics, economy, culture/society, biology, physical education, home economics.

To ensure inclusion of population education content in the textbooks for the above subjects, resource materials in population education were developed and supplied to textbooks writers. Content analysis of the new textbooks *vis-a-vis* the old ones showed that in the middle school level, population content numbered 172.5 topics out of a total of 1,553 in the old textbooks. The new ones include 241.4 topics out of a total of 1,802, showing an increase of 2.3 per cent. At high school level, population content included in the old textbooks was 236.1 topics out of a total of 1,950. This compared with 313.8 topics out of a total of 1,941 in the new ones, an increase of 4.06 per cent.[11] Teachers' guides were also developed.

Slides and tapes on population education were prepared for each level, while two kinds of film were developed for the high school, and one each for the middle and primary schools.

A package programme in population education for adults was developed through the help of KIRBS. The package consists of a set of nine self-learning modules, slides and tapes. The self-learning modules are as follows: (a) Population and the future of man; (b) Population and social development; (c) Children and family life; (d) New attitudes towards children; (e) New ways of life; (f) Sex and life; (g) Population and economic environment; (h) The nature of population problems; and (i) Planning for tomorrow. The slide and tape programme is titled *New thoughts and new behaviour* which is about son preference.

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[10] Byun, Yung Kye, et al. *Op. cit.* p. 59.

[11] Korean Educational Development Institute (KEDI). *Evaluation of population education programme.* Seoul, 1979.

Five population education programmes were developed and recorded on video tape. These are being used by the Mobile Teaching Team (MTT) which travels to the different provinces to present population education to teachers receiving training in other educational programmes.

Training

A series of teacher training programmes has been conducted by the Central Office for Population Education, largely in co-operation with selected colleges of education of universities and junior teachers' colleges. To begin with, COPE provided a five year intensive training programme to 150 key trainers (college professors, supervisors and principals). From 1975 to 1980, COPE has sent about 28 key educators on a study tour of ongoing population education programmes in Asia; one for a one-year graduate fellowship and one for a doctoral programme in population education in the United States. About 2,000 principals and assistant principals were provided a three-day training programme. In addition about 2,600 principals and assistant principals were provided a two-day training programme. This training programme for school administrators was considered crucial if only to provide the right institutional climate for population education in the schools.

Subsequently 6,800 high school teachers, 10,500 middle school teachers and 6,000 primary school teachers were provided a three-day training course in population education. In addition, 840 primary school teachers were trained to conduct population education for parents and adults in remote rural areas of the Republic of Korea.

The MTT, manned by two professionals, one technician and a driver presented the five video programmes in population education to teachers in the provinces who were undergoing in-service training programmes in other educational areas.

Demonstrative college programme

The Republic of Korea evolved an innovative modality for introducing population education in higher education. COPE commissioned four universities to experiment on alternative approaches to population education in their curricula, referred to as the Demonstrative College Programme. These universities are Ewha Women's University, Seoul National University (SNU), Korea University and Yonsei University. At Ewha Women's University a three-unit elective course 'Population and the future' has been instituted. At SNU, population education has been infused in anthropology, Korean history, social work, economics, sociology, demography, geography, ecology, genetics and biology. At Korea University, two inter-departmental lectures, 'What is futurology' and 'Economic development and population problem' were organized. An elective course, 'Population growth and social development' was also prepared. At Yonsei, four lectures, namely: 'Population and the future'; 'Male preference'; 'Obstacles to family planning'; and 'Population control policy in Korea' were organized. Population education has also been a part of school and community at the College of Education, Yonsei University.

The Demonstrative College Programme was later extended to 11 junior teachers' colleges, and 12 colleges of education. Model syllabi in population education were developed by Inchon Teacher's College for junior teacher's colleges; and the College of Education, SNU for colleges of education.

Information network

The Population Education Newsletter, published twice yearly, started in January 1978. Active components of the population education information network are the population education chapters that were organized in each of the provinces.

Research

The project has done three kinds of research, namely: (a) sociocultural studies for planning and implementing a population education programme; (b) research related to curriculum development; and (c) evaluative research, such as evaluation of students' knowledge gain and attitude change, and evaluation of training and teaching.

The researches have been sub-contracted to competent research institutes, such as KEDI, KIRBS and the education research institutes of universities, including those of Chung-Ang University and Seoul National University. The findings of these studies were used specially in the development of curriculum and instructional materials.

Impact of the programme

Students reached

In 1979 alone there were about 2,394,620 middle school pupils and 1,565,355 high school students taught population education integrated with different school subjects.

A Unesco commissioned in-depth study on the contribution of population education to educational renewal and innovation revealed that in fact population education made a significant innovatory contribution to education in the Republic of Korea. The population education of the

Republic of Korea affords an interesting example of the implementation of a nationwide programme of curriculum change, through the collaborative efforts of a variety of existing national educational and research institutions under the overall direction and supervision of a central co-ordinating agency—in this case COPE. One contribution to Korean education cited in the report states:

> The content of population education, which emphasizes the quality of life and the relationship between man and his bio-physical environment is viewed as innovatory in its broad inter-disciplinary knowledge base, in its attention to the clarification of values and in its future orientation. . . Population education is widely appreciated for its emphasis on learner-centred participatory teaching/learning methods. . .[12]

The report also showed evidence that population education contributed to the personal and professional development of teachers. More important perhaps, the report showed proof that population education contributed to the personal development of students and that it fostered better school-community relationships.

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[12] Unesco. Co-ordinated Action Programme for the Advancement of Population Education. *Study of the contribution of population education to educational renewal and innovation in El Salvador, the Republic of Korea, Philippines and Tunisia.* Paris, 1980. p. 91.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

SOCIALIST REPUBLIC OF VIET NAM

by Le Nang An

Population situation and characteristics

The Socialist Republic of Viet Nam covers an area of 329,566 square kilometres. It stretches for more than 1,600 kilometres along the South China Sea, forming the eastern edge of the South-east Asian Peninsula.

According to the census of 1 October 1979 the population of Viet Nam totalled 52,741,766 of which 51.5 per cent were females and 48.5 per cent males with 80.83 per cent of the population living in the countryside. For the years since 1976 to 1980 the average birth-rate has been 7.0 per cent and the rate of natural increase 22.3 per cent. If the present rate of population growth continues, the Vietnamese population will reach 90 million in the year 2000.

The census showed a heavy concentration of Viet Nam's population in the main population nodes: the Red River Delta surrounding Hanoi and the Mekong Delta to the South and West of Ho Chi Minh City. In these two deltas, which contain 23 per cent of Viet Nam's land area, live 53 per cent of its population. In the Red River Delta provinces, population densities are in the general range of 280 to 850 persons per square kilometre. In the Mekong Delta they are lower (150-500) and this provides the basis for the policy of opening new economic zones in this region.

Population growth

The basic population policy goal is to lower the rate of population growth as rapidly as possible. It has been a constant element of Vietnamese planning over a long period of time. This goal was first set in the North after consideration of the results of the 1960 Census and was widened to include the whole country after reunification in 1975.

In the long run, the goal must be based on long-term projections of economic and demographic trends and an analysis of their interrelationships, including analysis of the implications of alternative population trends. The long war affected population growth and structure. The young population is increasing very rapidly, and 45 per cent of the population is currently aged less than 16. In the long run, the potentially

productive labour force will therefore increase rapidly, but the immediate problem is to care for and train a large number of children, so that they will be capable of realizing their potential.

The tentative long-term goal is for the rate of population growth to stabilize at 1.2 per cent, which according to the projections implies a total population of 75 million in the year 2000. The intermediate target is to reach a growth rate of 1.5 or 1.7 per cent per annum by the year 1986. To do this there must be a rapid reduction in family size. At present, many families have at least four children and some have as many as ten. If a three-child family can be achieved, the population will be 80 million in the year 2000, whereas if a two-child family can be reached, the population will be only 64–65 million.

The Government plans to step up national efforts in the field of family planning, including production of contraceptives, more effective propaganda, population education in the schools and provision of incentives such as home appliances for those with only one or two children. During the 1981–85 period the goal is to lower the rate of population growth by 0.1 or 0.2 per cent each year.

The goals of family planning are not, of course, confined to the demographic target of a reduction in the birth rate. Other stated goals are: to protect the health of mothers and children; to decrease the infant mortality rate due to malnutrition; to improve the social status of women; and to make available to each family the means to achieve the desired family size.

The minimum legal age for marriage for girls is 18 years, but the average at marriage is tending to rise, being around 20 in the rural areas and well over 20 (possibly as high as 25) in the cities. The policy is to delay marriage as long as possible, and women's and youth committees in rural areas are committed to this goal.

Population distribution

At present, the distribution of Viet Nam's 54 million population is as follows: North - 28 million, with two million hectares of cultivated land; and South - 26 million, with over three million hectares of cultivated land. To achieve a better balance between population and resources, the Government plans to move ten million people from North to South by the end of the century, thus avoiding the need to move food from the South to the North.

Some resettlement is also planned within the mountainous areas in cases where the practice of shifting cultivation by the farmers resident in these areas is causing environmental degradation. In such cases resettlement is planned from upland to valley areas.

The role of women

Vietnamese women are almost all economically active and independent. They have access to basic education and health facilities and are fully integrated in the Vietnamese societal framework taking an increasing part in the public sector. Every opportunity is provided to upgrade their qualifications and ability. The women's role and contribution has been significant both in the struggles for liberation and economic reconstruction.

The two major programmes for building up the economy of the country are. (1) increasing food production; and (2) reducing population growth. As the crucial components are the women it is imperative to increase their mobility by providing access to appropriate facilities. Better living and working conditions, combined with qualitatively better creche services and family planning education will make the necessary impact for achieving the objectives of both programmes.

Gathering and using population data

Basic economic and social policy making in Viet Nam is the responsibility of the State Planning Committee, which is responsible for drafting the Five-Year Plans in co-operation with the various ministries. The three agencies most closely co-operating with the State Planning Committee in the formulation of Population Policy are the General Statistical Office (GSO), whose role is mainly to supply the necessary data, the Ministry of Health and the Institute for the Protection of the Mother and Newborn, which sets the detailed family planning targets.

Research sections of other ministries are responsible for setting goals in their own fields of responsibility which are directly linked to population trends and policies. For example, the Ministry of Education analyzes the needs for new schools and teachers occasioned by the educational policy of the nation and the increase in the number of children of school-going age. The Ministry of Health analyzes the need for basic health services and the Ministry of Defence analyzes the manpower trends and their implications for military recruitment.

Establishing a population education programme

The Government has recognized the importance of and need for population education which is an entirely new area in Viet Nam although in some isolated instances it has already been included in subjects in the school curriculum.

There are adequate infrastructural facilities from the national to the village level for all categories of general education, vocational education and complementary education as well as for pre-service and in-service training for educational personnel.

In June 1981, the UNFPA Needs Assessment Mission made the following recommendations for the effective implementation of a population education programme.

Institutional structure

1. A National Committee on Population Education should be set up with the Minister or Vice-Minister of Education as the Chairman. This committee should also have representatives from other concerned ministries and organizations.

2. A separate Department or Unit of Population Education, with full-time personnel should be established in the Ministry of Education which should be responsible for the implementation of the project. This Department should work closely with the Departments of Primary and Junior Secondary Schools, Senior Secondary Schools, Teacher Training, School

Inspection, Textbooks, Publications, Equipment and Complementary Education; the National Institute of Educational Science; the Institute of Vocational Education and the Audio-Visual Centre. Similarly, separate Bureaux and Sections of Population Education should be established at the provincial and district levels respectively. At the community/village level the Council of Heads of Schools and the Committee of Education should be made responsible for the implementation of population education in schools.

Curriculum and instructional materials

1. Population education should be integrated with relevant subjects in general education, complementary education and vocational education such as general science and moral education at the primary level; biology, geography and moral education at the junior level; and biology, geography, moral and political education at the senior secondary level. The possibility of a separate course in population education at the senior secondary level should be explored.

2. External assistance should be provided for the development and production of different instructional materials in population education.

Training

As there is no expertise and experience in population education in Viet Nam it is recommended that:

1. Population education should be integrated in the pre-service training of primary, junior and senior secondary teachers. It would be preferable for a separate course in population education to be offered in the training colleges and universities.

2. Population education should also be developed as one of the areas of specialization at the post-university level in Teacher Training University No. 1 at Hanoi. It could be integrated with the Sex Education Seminar which is being offered by the university. In addition, trainees should be encouraged to take up research topics related to population education.

3. The launching of the population education project should be preceded by:

a) Training of high level officials from the Ministry of Education through three to four week study visits to population education programmes in selected countries in the region; and

b) Training of key personnel at the national and provincial levels through a national training course of about ten days.

4. In order to develop national capability in population education selected project personnel and teacher educators should be given specialized

training in population education through long-term fellowships abroad and inter-country study visits in the region.

5. All the inspectors, administrators and heads of primary, junior, senior and complementary schools should be given orientation in population education.

6. All the teachers in general schools and complementary schools who would teach population education should be trained, preferably through face-to-face training. Other training modalities such as modular, distance teaching or mobile should also be explored. The existing infrastructure for the in-service training of teachers should be utilized.

7. External assistance is recommended for seminars, study forums, specialized training and fellowships.

Conclusion

The launching of the Population Education Programme is very timely as it coincides with the new educational reform implemented from September 1981 starting with grade I. The implementation of the new reform for the senior secondary level, i.e. grades X to XII will start from September 1983. This will make it easier to integrate population education concepts in the new curricula and textbooks. A study tour for the high level officials of the Ministry of Education is being organized by Unesco with the financial support of UNFPA in July 1982. This will be followed by a National Training Workshop which will be organized by the Ministry of Education with technical assistance from the Unesco Regional Advisory Team in Population Education.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

SRI LANKA

by W. Sterling Perera

Introduction and historical background

Sri Lanka has had a continuous national and cultural identity as far back as the founding of the nation in the sixth century B.C. Sri Lanka's ancient chronicle *Mahawansa,* records that the nation was founded by settlers from North India in 543 B.C. With the introduction of Buddhism in the third century B.C. a great centre of civilization arose around the ancient capital of *Anuradhapura.* That this ancient civilization supported a large population is evidenced by the existence of extensive ruins of large monuments and by the vast man made lakes and irrigation works; many of which are still in use. Foreign invasions and internal strife led to the abandonment of these centres of civilization beginning about the 12th century.

When the European colonial powers began to influence Asia, beginning in the 16th century, the centre of population had already shifted from the northern and eastern plains which was the cradle of Sri Lanka's ancient civilization, to the south-western quarter of the country. However, Sri Lanka resisted the efforts of annexation by succeeding European colonial powers, the Portuguese, the Dutch and the British for 300 years till the whole country came under British rule by a treaty arrangement in 1815.

Population situation and characteristics

For several centuries internal strife and foreign wars impoverished the country and reduced its population while the extreme measures taken to suppress rebellions during the early period of British rule continued this trend. However from the time of the first decennial census in 1817 a gradual increase of population is evident. At the last census held in March 1981 the population was 14.85 million. The continuing increase in population in a country of only 65,000 square kilometres brings in its wake problems of over population. The population density which is already nearly 230 per square kilometre makes Sri Lanka one of the most densely populated countries of the world.

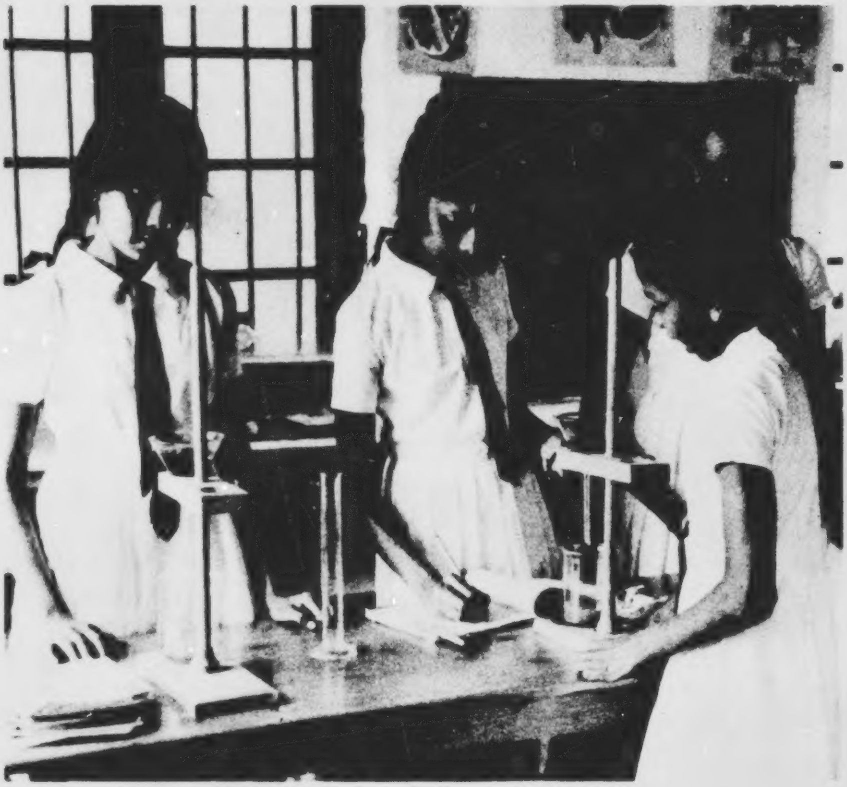
During the period for which statistics are available, Sri Lanka never had the very high birth-rates characteristic of the South Asian region but the high natural increase was due to low death-rates. In the year 1946–1947 the mortality rate fell from 20.3 per thousand to 14.3. Although the growth rate rose to 2.8 per cent in the 50s it has declined since then to the current rate of only 1.7 per cent (the natural increase being about 2 per cent). The decrease in birth-rate to the 1976 level of 27.6 per thousand has been mainly attributed to the increase in the general level of education and allied factors such as late marriage. (However, a slight increase was evident in the following two years by which time the death-rate had declined from 8.0 in 1976 to 6.8 per thousand in 1978). Apparently the services required for family size limitation lag behind demand levels in Sri lanka. The World Fertility Survey of 1975 revealed that the average number of children desired was only 2.4 although the average number of children per family was 3.9. Hence population education in Sri Lanka especially at the school level has to be a broad-based one with emphasis on factors such as efficient resource utilization for the improvement of the quality of life.

Demographic data

Population	1981	Census	14,850,000
Density of population	1981		228 per sq km
Urban population	1981	Census	21.5 per cent
Literacy	1981	Census	86.5 per cent
Birth rate	1980		28.0 per thousand
Total fertility rate	1981	Census	3.4 per cent
Death rate	1980		7.0 per thousand
Infant mortality	1980		42.0 per thousand
Maternal mortality	1973		1.2 per thousand
Natural increase	1980		2.1 per cent
Annual growth rate	1980		1.7 per cent
Expectation of life at birth	1980		63.0 years
Average age of marriage:			
Female	1981		24.4 years
Male	1981		28.0 years

Population education, in-school project

Population education components were introduced to the junior secondary level (grades VI–IX) in stages from 1974 following the institution of the Population Education In-School Project, at the Curriculum Development Centre of the Ministry of Education in July 1973. When the population education project was initiated, a major curriculum reform was under way beginning with grade VI in 1972. Because the new course guides were already in schools, population content was introduced through supplementary course guides. The method chosen was one of infusion where population components were introduced into the syllabuses of the first language, mathematics, science, health science and social studies already being taught at the junior secondary stage. The characteristics of the subjects were utilized for the introduction of the various aspects of population components.



Mathematics was utilized for the introduction of quantitative aspects while first language lent itself for the discussion of broad aspects. Science and health science lent themselves to the discussion of topics such as pollution. A wide range of topics in population education was infused into the social studies course.

The long-range objectives of the programme are:

1. To ensure that the citizens of the future are knowledgeable about the impact of population growth and distribution on the quality of life of the individual and the nation; and
2. To promote in the citizens of the future, responsible attitudes and decision-making in regard to issues of family size, population growth and distribution.

The immediate objectives of the population education in-school programme are:

1. To provide a basic understanding of the size, structure, composition and distribution of population at the local level and national levels in particular and at the regional and the global levels in general.
2. To provide for a basic understanding of the change in size, structure, composition, and distribution of the population at the local and national levels in particular and at the regional and global levels in general.
3. To provide an understanding of the consequences of the changes in population.
4. To provide for the development of responsible attitudes in making decisions pertaining to population situations.
5. To provide an appreciation of the necessity for rational decision-making in matters relating to population at the individual and national levels.

The programme is aimed at equipping the pupils with adequate knowledge that will help them in taking rational decisions later in life. The programme satisfies certain educational criteria and has no propagandist motives. For example a small family norm is not dogmatically advocated. Efforts are made, not to conflict with the socio-cultural and socio-religious norms cherished by any sector of the population to ensure the success of the programme. Today, certain concepts which were earlier regarded as controversial and unacceptable to society can now be discussed without fear of arousing opposition. The Population Education Programme discusses the demographic concepts required to understand population issues, determinants of population change and its effects on the quality of life at family, national and global levels.

Teacher training

The Population Education Unit organized residential courses for teachers teaching population education in the pilot schools at the very inception of the project. But the project staff could not undertake to train all the teachers teaching population education through the various disciplines. Therefore in addition to the course guides they produced a comprehensive reference book for teachers and a national source book on population education. The reference book, ***A teachers' handbook on population education,*** dealt with the following topics: 'Background of population education'; 'Population situation'; 'Factors effecting population change'; 'Interrelationship of population change and social life'; 'Population change and the economy'; 'Effects of population change on the environment'; 'Population growth and natural resources'; 'Population terminology'; and 'Population data'. As a preliminary to the in-service training of teachers in about 2000 schools the 'master teachers' were given comprehensive training in 1974. They were specially selected teachers working in the different education districts through whom all the school teachers teaching the relevant subjects could be reached for in-service purposes.

During the period 1978-1980 when the activities of the Population Education Unit were curtailed due to organizational changes in education, many master teachers, now referred to as in-service advisers lost touch with the programme. With the introduction of the new syllabi in 1979 and following the stabilization of the new reforms, a new project staff of four programme offices and a director were appointed in September 1980 to undertake the introduction of population education components on a permanent basis. These new changes are conveyed to the teachers in schools through the 189 in-service advisers.

The preparation of teachers college material in population education was another task to be undertaken by the Population Education Project but it did not go beyond the initial stage owing to the need to stabilize the in-school programme. Resources were diverted to curriculum development and classroom teacher training through in-service training. Some training colleges have included certain population concepts in their basic study courses. The Pattalegedera Training College in particular has been able to get the teacher trainees involved in case studies in which the population element figures prominently. The education Faculty of the University of Colombo, Sri Lanka, offers Population Education as an elective course for teachers following the Post Graduate Diploma in Education. The large numbers opting for it makes this a very popular course.

Current position

The Population Education Unit recommenced its work in October 1980 after about two years of inactivity. By this time a change in the general school structure had taken place. The junior secondary school stage was extended to include grade X. Another characteristic feature under the new reforms was that the teachers' guides were very brief. It was so with population education too. Although population education content was included in the different grades, the extent of teaching was not defined. Although the course guides for the final two years of junior secondary school were prepared in more detail their use still requires much initiative on the part of the teachers. In-service training is used extensively to overcome this defect and to help the teachers maintain uniformity in teaching throughout the country. The mode of testing also helps to improve teaching. The population education content was tested in the G.C.E. (Ordinary Level) public examination in all the population integrated subjects.

At the moment another change in the sphere of education is expected. A White Paper on Education Reforms, just submitted to parliament, envisages a change in the school structure where the senior secondary span will run to three years instead of two years as at present. The terminal point of the junior secondary stage will be grade XI instead of grade X. At the time population education was introduced the terminal point was grade IX. These changes will necessitate new thinking in the preparation of instructional material in population education. As the average student in the terminal grade of senior secondary school will now be 16 years old the content area of population education may have to be changed.

Non-formal education component

The Ministry of Education has a Non-Formal Education Branch (Adult Education Division) which provides a variety of educational programmes for the out-of-school youth and adults. These educational programmes seek to enrich the knowledge-base, promote skills and bring about a change in the behaviour and attitude of this clientele. Taking into consideration the target group, this could be a possible area for the introduction of population education components.

Linkage with other programmes

There are population programmes conducted by other Ministries such as Plan Implementation, Health, Information, Labour and agencies such as the Family Planning Association. Their programmes are directed more towards adults, but whenever seminars or workshops are held the Ministry of Education is also invited to participate, thus facilitating an exchange of experiences. The Population Information Centre which comes under the Ministry of Plan Implementation has been conducting lectures on population related issues for the students in the senior secondary grades (grades XI-XIII).

Accomplishments with reference to goals and objectives

It is evident from the long range objectives of the programme that it is very difficult to assess the impact of the population education programme on attitude formation. Yet it is encouraging to note that the actual population enumerated at the 1981 census (14.8 million) falls behind the United Nations estimates for 1981 (15.8 million). This may have been due to changes in the attitudes of the people; and there is no doubt that these attitudes and behaviour patterns will be passed on to the younger generation through education and the mass media.

Impact on target audiences

The target audience for the population education programme of the Ministry of Education is made up of the students in the junior secondary school. This programme aims at equipping them with the necessary knowledge to take decisions pertaining to population situations later in life. As mentioned earlier, the public examination contained a number of questions on population related content. The examiners' reports showed that these were very popular as about 90 per cent of the students attempted them and scored high marks. It may be assumed that part of the objectives have been fulfilled and that this knowledge will help them to take rational decisions, when necessary. A survey of attitudes, conducted by using a pre-test, post-test and an achievement test, has shown that there has been a significant difference in attitudes since population education was introduced into the curriculum.

Problems faced and strategies used to overcome them

At the very onset the main problem faced by the Population Education Unit was the task of training teachers. Four residential seminars of five days duration each were conducted for batches of about 200 teachers of population education in the pilot schools. As it was impossible to hold similar courses for all teachers engaged in teaching population education, a handbook on population education was produced and distributed to all the schools teaching population education.

In the meantime the in-service training of teachers was strengthened. A residential seminar of ten days duration was conducted for the in-service advisers of science, social studies and mathematics so that they could undertake the task of the face-to-face training of teachers in their respective regions. In addition to this, briefing sessions continue to be held for the in-service advisers every six months to enrich their knowledge, and to obtain feedback information. A major change came about when the activities of the project were suspended due to a re-organization within education. When the project recommenced as part of the Planning and Research Branch there were only three members of the project staff working full time.

One major problem in training teachers of population education is the lack of training materials and reference books to backstop their training activities. This problem cannot be easily solved by mass producing materials or setting up a library in each district because there are inadequate financial resources for this. The problem could be solved to some extent by using the Mobile Library, donated by the Unesco Population Education Clearing House, for Sri Lanka's teacher training programme in population education.

The Mobile Library will not only support the information and national requirements of the teacher training activities being undertaken in the district but will also provide a readily available source of materials from which all those engaged in population education in the district, can benefit. This will promote and facilitate the outreach of population education materials in the district. The Mobile Library will be used by in-service advisers, teachers of social studies, science and mathematics and health education students and other personnel in the district who are working on population education. Because there is insufficient reading material in the national languages, the project staff make translations of publications available to the users.

Innovative experiences

An innovative method of teacher in-service training adopted by the Curriculum Development Centre (CDC), is the use of master teachers or in-service advisers in the fields of science, social studies and mathematics. These in-service advisers, who are given comprehensive training, continue to train the subject teachers at the district level through their regular study circles which are organized under in-service programmes of the CDC. The Population Education Project too has been using this network of master teachers.

From its inception, the method adopted as the most suitable to introduce population education concepts was one of infusion and integration into the existing teaching material. But the Unesco team which reviewed the project in May 1981 felt that the impact would be greater if larger identifiable 'chunks' of population education concepts were put into the curriculum. The project will act on this recommendation when the revised material is added.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

THAILAND

by Kowit Vorapipatana

Population situation and characteristics

The Kingdom of Thailand on the Indo-Chinese Peninsula of Southeast Asia is bordered by Laos and Kampuchea to the north and east, Malaysia and the Gulf of Thailand to the south and Burma to the west. Thailand covers about 514,000 square kilometres. The patterns of rivers and mountains divide the country into four natural regions, namely: (a) the northern region, which forms part of the edge of the Himalayan region; (b) the northeast region, mainly the Korat plateau; (c) the central region on the Chao Phraya river basin; and (d) the southern region of the peninsula.

In mid-1979, the estimated population was 46,142,000. The rate of growth was then estimated at 2.3 per cent. Life expectancy at birth was estimated at 63.7. About 41.7 per cent of its population was then below 15 years.[1]

Population policy and the development of population education

In 1911, Thailand had a population of around eight million. Prince Damrong, the then Minister of the Ministry of Interior, said in inaugurating the Ministry of Public Health, 'Population size is very important to our country. How can we increase our population? . . . If our Government can only establish the preventive measures needed to reduce the death rate, our population will surely increase very rapidly.[2]

During the Second World War, the Government led by Prime Minister, Pibul Songkram, said 'The hands of only 18 million people are hardly enough for the country to achieve greatness. We need not less than 200 million hands and thus 100 million people to make our country a real power.[3]

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[1] [*Population Education Newsletter*] Ministry of Education. Department of Instruction and Curriculum Development, Bangkok). Bangkok, 1980 issue.

[2] Thailand. Ministry of Education. Department of Non-Formal Education. *Non-formal education of Thailand.* Bangkok, 1980.

[3] *Ibid.*

In order to achieve that goal all resources and methods were mobilized by the Government including:

1. Encouraging early marriage with the slogan 'get married young and make the nation prosper';
2. Promulgating welfare for persons with numerous offspring; and
3. Paying a bonus to those with large families.[4]

Today, the Government seems to be doing just the opposite, with the same maximum effort.

> It is the policy of the Thai Government to emphasize programmes designed to decrease the population growth rate. The Government will try to mobilize all Government and private resources to support family planning programmes. . . rapid population growth creates problems for society and the Government, so it is the policy of the Thai Government to support voluntary family planning.[5]

Population education policy and institutional structure

For a voluntary policy of family planning to become effective, it was realized that the Thai people would need to have an understanding of both the relationships between individual demographic decision, quality of life and community and national welfare, and also an awareness that each individual or group can contribute to demographic decisions in minimizing population problems which affect himself, his family or his nation. It recognizes that population education has a crucial role to play in the realization of the population policy. It was thus decided by the Ministry of Education that population education should be introduced as an integral part of the curriculum of both the in- and out-of-school education programmes. With this aim in view, the Ministry of Education set up an Executive Committee on Population Education in 1974 consisting of members from all departments of the Ministry and from outside agencies involved in population education.

The National Executive Committee on Population Education (NECPE) serves as the highest policy-making body in population education. Currently, the committee is chaired by the Under-Secretary of State for Education. The Director-General of the Department of Curriculum and Instruction Development and the Director of the Curriculum Development Centre, Ministry of Education, act as Vice-Chairman and Secretary of NECPE, respectively.

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[4] Thailand. Ministry of Education. Department of Non-Formal Education. *Non-formal education of Thailand.* Bangkok, 1980.

[5] *Ibid.*

A number of government agencies are implementing population education in Thailand–both in the in-school and out-of-school sectors. Among these are the following:

a) Ministry of Education;

b) Kasetsart University in collaboration with the Ministries of Agriculture and Co-operatives, and the Interior;

c) Mahidol University–Mahidol University Population Education Programme;

d) Ministry of the Interior;

e) Chulalongkorn University;

f) The Planned Parenthood Association of Thailand; and

g) Co-operative League of Thailand.

The Population Education Unit (PEU), Curriculum Development Centre, Department of Curriculum and Instruction Development has been serving as the secretariat of the NECPE since 1976. Since its inception, PEU co-ordinates and co-operates with all agencies concerned in planning and implementing population education programmes.

History shows that the population policy has to be adjusted according to the changing needs and situation of the country. The NECPE also believes that individuals and groups of people in different environments have their own strengths and weaknesses. There is no one ready-made answer for all individuals, or for groups of people that they can follow and use in all situations. With this understanding, the cabinet approved a Population Education Policy on 2 December 1976, which is as follows:

> The Government has established a policy to encourage the development and implementation of population education in in-school and out-of-school programmes in order to develop a scale of responsibility and decision-making ability among Thai citizens which will eventually lead to effective problem-solving behaviour and action. The primary purpose of the policy is to help individuals to confront problems that emerge from the interrelationship amongst population size, quality of life and the amount and distribution of resources as they affect the life of the individual, his family, his community and his nation.[6]

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[6] Thailand. Ministry of Education. Department of Non-Formal Education. *Non-formal education of Thailand.* Bangkok, 1980.

Population education objectives

Long-range objectives. The overall objective of all population education activities in Thailand is 'to help the Thai people to make critical and rational decisions pertaining to population and family planning matters'. The long-range plan calls for the following strategies:

a) Institutionalize population education as an integral part of all educational programmes;

b) Co-ordinate and link efforts related to population matters within and outside the educational sphere in a constructive and meaningful way;

c) Strengthen all agencies working directly in the field of population education;

d) Carry out the research needed to improve the teaching/learning process and materials, and to strengthen the institutional framework for research; and

e) Ensure that all those involved in population education have access to high quality teaching/learning materials.

Immediate objectives

a) Ensure that elementary and secondary pupils have access to adequate supplementary reading materials in population education;

b) Make available at least a set of teachers' manual, lesson plan and teaching/learning package in population education to each school in the country, and a training package to each adult education worker;

c) Ensure the involvement and commitment of key leaders and school administrators to population education through orientation seminars at the national, regional and provincial levels;

d) Provide training in population education to at least one teacher from each elementary school cluster, one teacher from each secondary school and vocational school;

e) Provide training in population education to extension workers;

f) Ensure that all teachers and other personnel in adult education and community centres have access to four radio programmes a month, slide and sound sets, tri-monthly newsletters, and a wall newspaper in population education; and

g) Strengthen all agencies working directly in population education through study tours and short-term and long-term training programmes, and provide the equipment and library books and facilities necessary to carry out the objectives of the programme.

Population education programmes

The NECPE co-ordinates the implementation of the national population education master plan. The following are some of the major programmes in population education in the country.

Ministry of Education, Curriculum Development Centre. The most massive programme operation in population education is that of the Ministry of Education. When the Ministry decided to revamp its curriculum, the broad view of population-related problems was conceived as the main foci of the problem and life-centred, and process-centred curricular reform. The new curriculum which was launched in 1978, starting simultaneously in the first grades of elementary and secondary school on a grade per year basis, is in the fifth grades of both the elementary and the secondary levels in 1982.

The main feature of the new curriculum is a move away from bookish, academic and teacher-centred processes towards a practical, life-centred teaching/learning process.

A real improvement in the quality of life comes not only from a knowledge of technical information, but is combined with an understanding of the environment, culture, available resources and the individual's personal limitations. Population issues are concerned with life and society, therefore, it is undesirable for teachers to hand every student ready-made answers and expect them to believe or to accept such ready-made answers.

In a village in Chiang Rai Province, where people eat raw meat, the instructors are not supposed to tell the students that the practice is wrong, but to tell them that according to research findings, books and doctors, eating raw meat can cause many problems. Eating raw meat then becomes an issue for discussion and they will try to find out why they eat raw meat and what the alternatives could be.

In Chiang Rai, it has been found that many people of all age groups have been told about the danger that may arise out of eating raw meat. But the decisions taken by different groups are not the same!

Here are some of the responses:

From young people

a) "We have reached a decision that we will stop eating raw meat."

b) "We knew the danger of eating raw meat long ago, but we never considered it seriously. Today, after the discussion, we realized that what we learned is not for examination but for the good of our lives. We decided to quit eating this raw meat."

c) "We stopped eating, no problem."

The middle aged

a) "We know the consequences of eating raw meat. We are going to try to stop eating it. But we know it is not easy."

These are some of the group guidelines on how to stop eating raw meat:

b) "When we have a party we will prepare other kinds of food instead of the popular raw meat."

c) "If we go to others' parties where raw meat is served, we will try not to eat it. However, we would still pretend that we eat raw meat as we used to. If we don't do that, the other guests and the host will feel bad. They may think that we are pretending to be an elite or trying to show that we are better than the others. However, we will try to persuade our friends and neighbours to understand the danger whenever we can."

d) "If we prepare the dish, we will make sure that we clean the meat well. And we will try to have it cooked."

The old people

a) "We are old. We eat this raw meat all our lives. We are addicted to it. We will try to find the way to cook it. However, we have to keep its taste."

b) "We cannot stop, but we surely understand the danger of eating raw meat. We will make it more clean and probably have it a little less."

It can be seen that, in making decisions, the people have to use not only an academic knowledge base, but the traditions, social pressures and personal limitations, as well. If the aim of education is to improve the quality of life and of the society, it should be in the context of the social environment and limitations of man. In the case of eating raw meat in Chiang Rai, it was found that all participants regardless of age level benefited from the lesson and all of them decided to do better.

It is the strategy of the Thai population education programmes to have students, with teachers as facilitators, use (a) all of the academic knowledge of traditional subject areas, i.e., social studies, economics, health, nutrition, agriculture and mathematics; (b) knowledge of the community, the socio-cultural base and the resources available; and (c) knowledge of the strengths and weaknesses or limitations of students as individuals or as groups pertaining to population problems or issues.

Population education is intended to play an important catalytic role in integrating all relevant knowledge to be used in solving social problems. Population education is also seen as playing a key role in the renovation of school curricula. Teachers are being trained in real life problems and in the process-centred approach, using population problems as one of the illustrative models.

a) *Development of materials*

The following types of materials in population education are planned to be developed under the national programme:

> *Supplementary readers (Elementary).* One way to affect the values and attitudes of elementary school children is through the production of supplementary readers with simple stories that carry a population education message. This is because at most elementary schools, there is such a dearth of reading materials that virtually any book produced will be eagerly read by all children, particularly if it is well illustrated.

Through workshops, it is planned to prepare prototype supplementary readers designed for grades III–IV and for grades V–VI in 1982. The supplementary readers will consist of stories built around population education concepts. While the concepts would be the same, the stories may vary depending upon the regional socio-cultural context.

Each school will get at least ten copies of each of the supplementary readers which could then be used by one whole class at a given time. More copies will be made available later for sale.

Supplementary readers (Secondary). Supplementary readers for secondary school level will also be developed. Two sets of supplementary readers are envisioned. One supplementary reader is to be used for the elective course in population education in the lower secondary level and in the adult education level four, and the other one for the upper secondary elective course in population education. The latter will also be used for the vocational secondary schools and the adult education level five. Ten copies will be distributed to each of the 2,440 schools and each of the 1,160 adult schools teaching levels four and five.

Teachers' manual (Elementary). Though population education will not be taught as a separate subject in elementary school, there are a large number of activities that could take place within the integrated framework of the new curriculum, which could help create an awareness in population phenomena.

It is, therefore, planned that a teachers' manual should be produced for use by all elementary school teachers, teaching in all grades. A draft of the manual will be prepared by a small working group. This will be printed in prototype form and distributed to trial schools. After testing it will be revised, edited, and printed; and five copies will be distributed to each school.

b) *Training*

The Fourth Five-Year Plan (1977-1981) underscored the importance of training in the field of population education. The first of the five specific guidelines of the plan in connection with in-school and out-of-school population education emphasized the need to have qualified teachers who are knowledgeable in population education.

There are at least three types of personnel training being carried out in population education, namely: (i) pre-service training of teachers; (ii) in-service training of teachers; and (iii) training of field workers. The pre-service training of teachers is now taken care of by universities and teacher training colleges, where population education is one of the elective courses offered.

Regarding in-service training of teachers, the Ministry of Education has co-operated with the Mahidol Population Education Programme (MPEP) in organizing intensive training programmes in population education for 267 resource persons/supervisors. Furthermore, the Ministry of Education also provides the budget for any department and regional/provincial education office to run in-service training programmes for teachers in accordance with their needs. Under this scheme about 650 teachers of upper secondary were provided five days training in population education. In addition, population education has been one of the topics taken in the in-service training of about 7,000 teachers in social studies, health education, home economics and physical education.

c) *Research and evaluation*

Many of the researches in population education have been done by MPEP. These include: (i) surveys to assess the need for and acceptance of population education among secondary school students, student teachers and teachers at all levels, and educators and government officials; and (ii) analysis of textbooks and other curricular materials to ascertain what population content is already included.

The Ministry of Education has prepared two case studies on (i) the development of out-of-school population education; and (ii) the co-ordination of education and population policies. A study on the achievement of adult learners in the functional literacy and family life education project has also been completed. It also did some evaluative research, such as: (i) the evaluation of the try-out of the population education packages for the upper secondary level; and (ii) follow-up and evaluation of teacher training in population education at the upper secondary level.

Department of Non-Formal Education. The Division of Adult Education (now Department of Non-Formal Education), Ministry of Education has long been involved in out-of-school population education. The department has three main programme thrusts namely: (i) basic knowledge or functional literacy; (ii) skills training, which includes a mobile trade training programme, vocational education and interest groups (short courses like cooking); and (iii) information dissemination. It is in functional literacy and information dissemination programmes that population and family life education have been integrated. The main objective of the functional literacy programme is to make a *Khit pen* person. A man who has mastered the process of *khit pen* will be able to approach problems systematically. This is because he is trained to examine the causes of his problems, gathers the widest range of information, considers alternative courses of action, and weighs the merits of each option.

To carry out the functional literacy programme, a unique teaching modality has been adopted by the department, in which learners are not given a book, but a card is issued each session, and these cards gradually mount up to form a kind of book. Of particular interest is the concrete and functional approach to this programme. Problems which are raised on the cards include the basic problems of farmers, such as how to increase crop yields; investment and marketing problems; health problems and sanitation problems, as well as population issues and problems.

Population education is always a main feature in the wall newspaper, which is one of the activities in the information dissemination programme. About 40,000 copies are printed twice a month and distributed and posted in village reading centres throughout the country.

Population education is also being gradually introduced to the youth and adults enrolled in the skills training programme.

To enable the Department of Non-Formal Education to help other non-formal education agencies involved in population education, it developed a training package in population education for extension workers during the preparatory state of the project. The package includes: (i) a number of separate story kits including an easy text, picture models and charts relevant to population education; (ii) basic teaching/learning materials such as posters and leaflets. It is planned to produce 7,000 of these packages in 1980. They will be distributed to extension workers.

Institute of Technical and Vocational Education (ITVE). The ITVE, which has about 28 campuses in Bangkok and the provinces of Thailand has integrated population/family welfare education with its curriculum. With the help of ILO, a trial edition of a *Handbook of population education for teaching in ITVE* has been developed. The handbook is content-oriented. There is a need to train the academic faculty of the 28 campuses how to teach population education. The programme has potential, if only for the fact that the graduates of the institute are prospective foremen in factories. Hence, the prospect for multiplier impact.

Kasetsart University and Ministry of Agriculture and Co-operatives. It is estimated that about 80 per cent of the labour force in Thailand are engaged in agriculture. Due to the predominantly agrarian socio-economic structure, agricultural extension has become the primary extension activity of the Kingdom. There is an increasing recognition within the Kingdom that population problems and socio-economic development are interrelated. Easing the population pressure can provide the much needed elbow-room for socio-economic development.

Kasetsart University in collaboration with the Ministry of Agriculture and Co-operatives, and the Ministry of the Interior hope to contribute to the realization of the population policy within the Fifth Year Plan to reduce the population growth rate to 1.5 per cent by 1986, by helping implement the population education policy in the out-of-school sector, through integrating population education with the agricultural extension programme of the Kingdom. Hence, a project in population education for the Thai farmers.

Mahidol University Population Education Programme. The first country project in population education financed by UNFPA (1972) was the Mahidol Population Education Project (MPEP) at the Department of Education, Faculty of Social Sciences and Humanities, Mahidol University. MPEP, in effect, pioneered various aspects of population education programming in collaboration with the Ministry of Education.

The MPEP, continues to offer a master's degree programme in population education and through UNFPA and Rockefeller grants MPEP runs a 60-hour intensive training course in collaboration with the Ministry of Education.

Department of Labour, Ministry of Interior. The Labour Department of Thailand developed a limited programme in population education and family planning for trade union leaders in co-operation with the Labour and Population Team of ILO in 1974–1975. In 1976, the Department of Labour proposed a project entitled, 'Population/Family Welfare Education in the Organized Sector.' The project (a) promoted the small size family norm among all workers in private and government enterprise through information and education and through effective techniques of motivation for such target groups; and (b) motivated and educated employers and management staff on the importance of supporting the population policy of the government in their own interest, the interest of their workers, and in the interest of the nation as a whole.

Planned Parenthood Association of Thailand (PPAT). The PPAT is committed to complement and supplement the National Family Planning Programme's Information, Education and Communication (IEC) and Contraceptive Delivery. The education component of PPAT's IEC is what might be singled out as efforts in population education. This is, perhaps, a

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tiny fraction of the Kingdom's population education programme, but it is a significant one. For instance, since PPAT is a private organization, it is able to pioneer and pilot programmes in potentially controversial and sensitive areas such as sex education especially for high school students and out-of-school youth. PPAT thinks that there is an increasing demand for this programme, hence its pioneering efforts in this regard.

Co-operative League of Thailand (CLT). A UNFPA/ILO/CLT National Seminar on Co-operative Development and Population Problems was held in October-November 1976. Since then the CLT has included population/family welfare education in several of its courses. In 1978, the Co-operative Promotion Department of the Ministry of Agriculture and Co-operatives and CLT proposed a project entitled, Family Welfare Education in the Co-operative Sector.

Conclusion

Indeed, the Government of Thailand considers population education as one very important strategy for development. The Cabinet instructed the National Economic and Social Development Board to include population education in the Fourth and Fifth Five-Year Plan (1977-1981 and 1982-1986) as an integral part of the overall population and development plan.

It is hoped that the population education programmes of Thailand will help to improve the quality of life of the Thai population by enabling individuals and groups to confront problems that emerge from the inter relationship between population size, the quality of life and available resources.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

TURKEY*

In the 1980 General Conference of Unesco, Turkey signified its desire to participate in the activities of the Unesco Regional Office for Education in Asia and the Pacific. In 1981, a delegate from Turkey participated in the Regional Workshop for the Development of Prototype Curriculum Materials for In-School Programmes in Population Education.

Population situation and characteristics

Turkey is situated in both South-eastern Europe and South-western Asia. The total land area is about 780,000 square kilometres, of which only about 24,000 square kilometres, or 3 per cent, is in Europe. Turkey is larger than any European country, except the Union of Soviet Socialist Republics.

The population of Turkey was estimated at about 44.9 million in 1980, growing at the rate of 2.22 per cent per annum.[1] The crude birth rate between 1975-1980 was estimated at 34.9 and life expectancy at birth was about 61 years of age. In 1980, the urban population was estimated at 47.4 per cent. Turkey has a young age-structure with 40 per cent of the population under 15 years of age in 1975 and only 4.5 per cent aged 65 years or older, giving a total dependency ratio of 80. In a survey by the Hacettepe Institute of Population Studies in 1973, it was estimated that infant mortality was about 150 to 155 for Turkey as a whole, (160 to 165 for rural areas and 150 for urban areas).[2]

Turkey began exporting workers to Western Europe in 1961. The total number of workers who went abroad between 1961 and 1978 was estimated at 840,000, most of whom were accompanied by dependants. In 1977, about 72.4 per cent of all Turkish nationals residing abroad were in the Federal Republic of Germany. It is estimated that since 1973 approximately 200,000 Turkish nationals have returned.[3]

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* Based on the country report of Dr. Aykut Toros and the 1981 Mission report of the Regional Adviser on Population Education.

1. de la Cruz, Leonardo. *Mission report.* Turkey, 17-31 January 1981.

2. *Population policy compendium.* (United Nations Population Division and UNFPA) Issue on: *Turkey*, February 1980.

3. *Ibid.*

The Turkish population is mobile, with almost 9.5 million inhabitants (23.5 per cent of the total population) having changed their places of residence between 1970 and 1975.

Population policy

The Government's overall approach to population problems involves direct intervention to modify demographic variables in combination with economic and social development. The official policy is to reduce mortality and fertility and to correct the uneven pattern of demographic change due to internal migration.[4]

The General Directorate of Population Planning, of the Ministry of Health and Social Affairs co-ordinates population activities in the country.

Population education: formal and non-formal education

The Ministry of National Education conducts education programmes on population in both formal and non-formal activities. These are briefly discussed below.

Formal education

The Ministry of National Education considers population education as a part of its school programme dealing with population issues in the subject fields of geography and natural and social sciences.

In Turkey there are four levels of school, for each of which a separate curriculum is developed. These are as follows:

1. Primary, which is compulsory and includes grades I to V.
2. Secondary, junior and senior high schools;
3. Higher education, university or equivalent; i.e. grades XII to XV;
4. Graduate, including master and Ph.D. degrees.

At primary level, the population content is covered in connection with many topics from grades I to V. However, it is in grade IV where population concepts are treated more systematically. On the topic, 'Life in contemporary Turkey', population is a unit. Among the population concepts discussed are: (i) census and intercensal growth in a village, town and city; (ii) male-female ratio; (iii) population size and rate of population growth of Turkey; (iv) problems created by population growth; (vi) rural-urban settlement; and (vii) population distribution age, sex, occupation and education (including literacy rates).

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[4] *Op. cit.*

At the secondary level, population concepts are given mainly in the geography courses, and some population-related topics in the subject, nature and environment. Among the population concepts studied in junior high school (grades VI to VIII) are 'Population distribution in Turkey and the world', 'Population size and ethnic groups' and 'Population dynamics'. In the senior high school (grades IX to XI) the population topics taken up are (i) 'Population increase and the problems created by population growth'; (ii) 'Population structure; (iii) 'Population dynamics'; and (iv) 'Human settlement'. Human reproduction is covered in the subject, knowledge of nature.

At the university level (or equivalent), the undergraduate programmes include introductory population courses. It is only in very few universities that more than one course in population is offered. At the graduate level, there is one institution that offers M.A. and Ph.D. degrees in population dynamics.

Non-formal education

Ministry of Education. Since the adoption of the Population Planning Law in 1965, population education has been a part of the non-formal education programme of the General Directorate for Extension of Education in the Ministry of National Education. In 1970, an attempt was made to introduce population education as an integral part of functional literacy programmes developed within the framework of the Functional Literacy and Health Education Project launched in co-operation with the Ministry of Health and Social Welfare. The results of this attempt were inconclusive as the adopted methods of drama stories and language teaching were not well suited and the programme evaluation was still incomplete when the *ad hoc* team members dispersed. A more serious approach towards population education was initiated only in 1977 by the Functional Adult Education Project organized by the Ministry of National Education in co-operation with Unesco and UNFPA. The project undertook a large scale reorientation of the popular education activities, designed a new policy for this part of the total educational system, built up an applied research and programme development institution for non-formal education and initiated the introduction of multifaceted programmes with population education components within the framework of limited experimentation of a few developed programmes. Even if the project could not achieve all of its objectives in this respect, its main contribution was that it put population education into the education programme and was largely instrumental in the formulation of the Ministry's first policy outline in the domain of population education.

The 1979 UNFPA Needs Assessment Mission reported that:

> In the programmes of non-formal education the objectives of the Ministry are explicit, namely, to promote the awareness of population problems and to provide the target population with adequate knowledge about correct concepts of family planning and preventive methods concerning child conception. The recent approach towards development of multifaceted programmes even in the domain of vocational and technical training, aims at introducing the population issues in these programmes together with other topics pertaining to the economic and social life of the individual and the community.
>
> At present, the network of popular education centres carries out 12 different social and health programmes (in 158 centres) which deal either completely or partially with population planning. The Institute of Non-Formal Education is preparing a family planning model programme which could be adapted and implemented in popular education centres and village education rooms.[5]

Other organizations. The other government and non-government organizations involved in population education related activities include some universities (particularly research), the Family Planning Associations and the Development Foundation of Turkey.

In addition to its co-ordinating role, the General Directorate of Population Planning, Ministry of Health and Social Affairs, conducts population programmes including population education. One of the proposed projects of the Directorate is titled Population and Family Planning Education for Officers and Conscripts in the Army. The rationale of the project is that in the past, family planning programmes have mainly been directed towards women and wives, despite the fact that important family decisions, such as family size, rest with both husbands and wives. It is hoped that this project will fill the gap. The project is broad-based covering not only family planning but the interrelationship of population dynamics and aspects of quality of life such as health, food and nutrition, housing, employment, environment, resources and education.

Conclusion

The Ministry of National Education considers population education a very important contribution to the realization of Turkey's population policy. This is evidenced by the formulation of basic principles of population education particularly in non-formal education.

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[5] UNFPA. *1979 Needs Assessment Report.* New York.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

FIJI*

Introduction

Geographically, Fiji consists of a group of more than 300 islands, of which approximately 100 are inhabited with most of the remainder being used for temporary residence and for planting. The principal islands are Viti Levu and Vanua Levu which comprise together an area of 16,622 square kilometres out of the total land area of 18,272 square kilometres; or 91 per cent of the total. Suva, the capital is situated with the second largest city Lautoka, on Viti Levu, the largest island of the group.

Economically, Fiji is a developing country. It has a large agricultural base with sugarcane and copra being its main products. Its manufacturing sector is growing, mainly to meet local requirements, but attempts are also being made to serve the other South Pacific countries with a limited range of manufactured goods. Tourism as an industry has grown rapidly in the past decade.

Population and growth rates

At the time of the 1976 census the total population of Fiji was approximately 590,000. Ninety-four per cent of the population were Fijians[1] and Indians while Chinese, part-Europeans,[2] Rotumans, Europeans and 'other' Pacific Islanders made up the remaining 6 per cent. The Fijian population comprised approximately 261,000 and the Indian population 293,000.

The 1976 census showed that over the ten years since the previous census the population growth in Fiji averaged 2.1 per cent. In the same period the proportion of Fijians had risen from 42.4 per cent of the population to 44.2 per cent while the proportion of Indians dropped from 50.5 per cent to 49.8 per cent.

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* Taken from: *Population education in the South Pacific;* report of a Sub-Regional Workshop, Suva, Fiji, 1-12 October 1979. Bangkok, Unesco, 1980; and updated by the Regional Adviser on Population Education in the Pacific.

[1] The term 'Fijians' in this article refers to the indigenous, mainly Melanesian Fijian race. The collective term for the Fijian and Indian races living in Fiji is 'Fiji citizens' or 'Fiji nationals'.

[2] The term 'part-European' is used to describe those of mixed parentage, generally European and Pacific Island, of which there are many variations.

The lower growth rate of the Indians can be attributed to two factors: (a) the birth-rate has declined; and (b) the out-migration among Indians is higher than among Fijians.

Fertility and family planning

The Fertility rates for both Fijians and Indians have declined consistently since 1970. There is evidence that Indian women are better protected by family planning methods than Fijian women. The 1974 Fiji Fertility Survey indicated that amongst the married women between 15 and 49 years who were surveyed the most popular method of contraception was the pill. Withdrawal and the rhythm method were the most frequent 'traditional' methods used while 11 per cent of Fijian women believed that they could not become pregnant while breast-feeding. The *Fiji Profile* prepared by the Ministry of Health reports that the proportion of Fijians protected by any of the family planning methods in 1977 had declined by one per cent when compared with 1972. The proportion of Indians had increased from 24 per cent in 1972 to 29 per cent in 1977. The national percentage of acceptors is 24.

Life expectancy and age distribution of population

Life expectancy in Fiji is high as shown by the following 1976 figures:

Fijians male:	67 years	Indians male:	65 years
female:	72 "	female:	68 "

Fiji has a young population with about two out of every five of its population under the age of 15 years. Table 1 shows the dependency ratios–young and old. Since Fiji has a young population, the 'young' dependency ratio is high but, with the declining birth-rate, this is expected to decrease. On the other hand, with an expected increase in life expectancy, the 'old' dependency ratio is likely to increase. Note that this is obviously a crude measure since the calculation makes the assumption that everyone, male and female, in the age brackets 15–49 years is a 'producer' and that everyone outside the age bracket is a 'dependant'.

Table 1. Dependency ratios: 1970, 1976

Year	Est. population 15–59 years	Est. population 0–14 years	Est. population 60+ years	Total 'dependant' population
1970	277,899 (100%)	233,879 (81%)	22,679 (8%)	256,558 (89%)
1976	320,589 (100%)	245,732 (77%)	24,118 (8%)	269,850 (85%)

Source: *Social indicators for Fiji*, 1979. p. 7

Internal migration

In Fiji, internal migration is mostly to the main island of Viti Levu from outlying islands for the purpose of finding jobs or to further education. The concentrations of population are found in urban areas, coastal areas and river valleys.

At the 1976 census, approximately 220,000 persons or 37 per cent of the total population lived in urban areas as against 159,000 persons or 33.5 per cent at the 1966 census. The proportion of most of the components living in urban areas has increased during the period between the 1966 and 1976 censuses. The only exceptions are Europeans and part-Europeans whose proportions have decreased. The greatest increase was experienced by the Rotumans with only about one-third of its population living in urban areas in 1966 as compared to about one half in 1976. The proportion of Fijians has also increased from about one quarter in 1966 to about one-third in 1976.

Table 2. Percentage of each racial group living in urban areas, 1976 Census

Component	1966 (%)	1976 (%)	Urban	Peri-urban	Total urban
Chinese and part Chinese	84.0	85.6	3,161	820	3,981
European	85.7	82.7	3,048	1,029	4,077
Fijian	23.8	30.5	36,310	43,004	79,314
Indian	36.9	39.5	61,730	53,902	115,632
Part European	71.2	70.6	4,711	2,546	7,257
Rotuman	38.5	55.2	2,560	4,024	6,584
Other Pacific Islanders	46.9	48.8	1,445	1,881	3,326
Total population	33.4	37.2	112,965	107,206	220,171

Source: *Social indicators for Fiji,* 1979. p. 9

Mortality

The crude death rate in Fiji in 1976 was 4.3 per 1,000 population as compared to 6.9 in 1975 and 4.8 in 1974. During the last five years, the crude death rate has been stabilized at an average of 5 per 1,000 population. Since Fiji has a young population, the death rate is low compared with developed countries where there is a larger proportion of older people. The death rate is expected to increase with the increase in life expectancy. Between 1970 and 1976 the average annual death rates per thousand were: Fijians 4.49, Indians 6.39. These had dropped to 3.6 for Fijians and 5.3 for Indians by 1976.

Infant mortality in Fiji is low when compared with other developing countries and is higher among Indians than among Fijians, mainly because of the high neonatal death rate among Indians.

Table 3. Infant deaths per 1,000 live births: 1973–1977

Year	Total	Neonatal*	Post Neonatal**
1973	41.1	26.2	15.0
1975	41.4	25.2	16.2
1977	31.8	19.2	12.6

* Deaths under four weeks

** Deaths between four weeks and one year

Source: *Social indicators for Fiji*, 1979. p. 13

Nutrition

In 1973, the Ministry of Health launched a national programme on nutrition education with the objective that 'the principle of a balanced diet will be understood and practised by all the people'. The programme is focusing its efforts on:

1. The teaching of nutrition in schools and training institutes;
2. The teaching of nutrition to health workers, Women Interest Officers and Agricultural Extension Officers in the field; and
3. The teaching of nutrition to the people in villages and settlements by health workers, Women Interest Officers and Agricultural Extension Officers.

Education

Although school attendance is not compulsory, the percentage of children aged 6–13 attending school rose from 95.6 per cent in 1975 to 95.8 per cent in 1976 while the corresponding figure for the 6–11 years age group rose from 98.6 per cent in 1975 to 98.9 per cent in 1976. The full-time roll of all schools increased in 1976 by 1,173 to 166,689. The primary roll dropped by 1,344 to 133,627 while the secondary roll increased by 2,686 to 30,758. The full time roll of technical and vocational schools and the teachers' colleges was 2,304. This overall increase was the lowest for many years and has been attributed to Fiji's declining birth rate since 1966.

Individuals are considered to be functionally literate if the have completed at least five years of primary education. Using this definition, literacy among persons aged 15 years and over has risen from 72 per cent at the time of the 1966 census to 79 per cent in 1976.

Introducing population education into the curriculum

Population education makes the students aware of the process and consequences of human population growth on the quality of life and the environment. Population education is not birth control or family planning although information concerning both might be included in the content of the programme. It is not a programme designed to persuade people to have a particular family size, either large or small.

There are two ways through which population education can be introduced in the school curricula; one is to infuse it into the existing school courses and the other is to introduce it as a separate course. The infusion approach is an easy one when the courses are being revised. The Fiji Ministry of Education has already introduced topics of population education in the various courses that have been developed for Fiji schools. The following six major areas of population education have been discussed: population growth; economic development and population; social development; health, nutrition and population; biological factors—family life and population; and family planning policies and programmes.

The first four areas are regarded as the core of any population education programme and the remaining two are usually regarded as the integral part of a family education programme. In the Fiji context 'human reproduction' has already been included in the biology courses. The usefulness of its inclusion is very obvious because students learn that birth is not a matter of chance or divine gift but a matter of individual decision. The knowledge of the whole phenomenon of human reproduction helps to dispel many myths and superstitions.

Basic science. One of the aims of the courses is to develop the students' understanding of their present environment and its possible future, and the extent to which man is dependent on his natural environment, particularly the land and its produce. One of the five themes of the course is ecology and the general statement on this theme is as follows:

> This would involve the study of the interdependant population of producer, consumer and decomposer organisms, inhabiting a particular environment, and being distinguished by three related phenomena of energy flow, nutrient pools and population regulation.

A topic on population regulation under the following headings is taught at the Form 3 and 4 level: the need for balanced foods; man as manipulator; and physical and biological factors affecting the distribution of living things, including man.

Human reproduction, various methods of contraception, sexually transmitted diseases which affect the foetus, drugs that are harmful to the foetus and the functions of a family are discussed in the biological science programme developed by the Ministry of Education for Form 5.

Social science. In the social science programme for Forms 1-4, aspects of population education are included under the following headings: living in towns; people; communities; and looking at families. The family is an important social and biological phenomenon responsible for the mechanics of population change, control and socialization. The study of 'families' includes: types of family groupings; kinship network; generations; family roles; kinship patterns; and marriage and other institutions.

Although the core studies of the social science programme are general and deal with broader concepts, the support studies provide pupils with alternative case experiences. In Unit 1.3 the concept of race/world classification and facts which lead to understanding of biological/cultural characteristics are discussed. A unit on population and urban development deals with various aspects of population in Fiji. The important points discussed in this unit fall under the following headings:

1. The nature of Fiji's population–composition, number, growth and age/sex structure;
2. Distribution of population–reseasons for density and distribution;
3. Forces affecting population growth;
4. Migration–internal migration in Fiji, urban rural migration, external migration; and
5. Features of urban development–growth rates, problems of urbanization.

Fiji's school population education project

Based on the background given above, needs in school population education were assessed and a project request was made to UNFPA for funding and to Unesco for technical assistance. The request was approved and the project will be implemented in the near future.

Long-term objectives

1. To promote greater awareness of the causes and consequences of population phenomena in Fiji; and
2. To enable the Ministry of Education, through the formal education system, to disseminate population and development information and to generate awareness.

Short-term objectives

1. To facilitate the mass production and distribution of special curriculum units on population issues for Forms 1-4 social science and Form 5 biological science within the Fiji formal school system;
2. To enhance the capacity of the Ministry of Education to act as a resource base for curriculum innovation and revision in the areas of family health and population development; and
3. To conduct relevant in-service training on population issues and phenomena for primary and secondary teachers.

Project activities

The Ministry of Education has been steadily revising the curricula of the Fiji education system over the last ten years, via the work of their Curriculum Development Centre in collaboration with the Curriculum Committees for each subject. Many new curriculum units are being incorporated into regular teaching; others are still in the trial stage. Two limitations inhibit the maximum utilization of such units when fully developed:

1. The inability of many schools to pay for materials; and the limited capacity of the Ministry to provide in bulk, free materials to the schools; and
2. The fact that teachers have not been fully trained in the use of these units and sometimes have little training in the new issues to be covered.

This project will attempt to overcome these obstacles for the Family Health and Population Development Units already developed by the Ministry and presently being tested in trial version. At the same time it will provide very basic teachers' resource materials on population issues to secondary schools and teachers' colleges, and enable in-service training courses to be conducted for all the teachers who will be assigned to teach the new curriculum units.

The project will begin with the purchase of 140 copies of three basic population reference books, a copy for each of the 135 secondary schools, four teachers' colleges and the Curriculum Development Centre of the Ministry. Selection of the books will be made by the Curriculum Committee for Social Science, in consultation with the Curriculum Development Centre. One of the three will be Volume I of the *1976 Census of the Fiji population.* Around this time, each Teacher's College will receive an overhead projector, teaching aids and the trial materials so that these can be incorporated into pre-service training programmes.

It is anticipated that the two curriculum units currently in use in some schools as trial versions—'Population' in social science and 'Family life' in biological science—will be in their final versions in the second half of 1982. After the respective curriculum committees decide on the final version, 5,000 copies of the students' book and 500 copies of the teachers' guide will be printed for each unit. Teachers will be informed that the new units will be part of the 1983 curriculum, and that they should use the materials beginning in 1983.

The first in-service training course will be held in the first half of 1983 at the district level; one to be held at each of the 18 District Centres. The teachers to be involved will include social science and biological science teachers from Upper Primary School (Classes 7 and 8) and Forms 1-6 in Secondary School who are those teaching pupils in the 14-19 years age group. Depending on staff changes and responsibilities there should be a total of 500-600 potential teachers of the new materials (and therefore participants in such courses). At each district level there will be 30-40 participants in an in-service training course. Six such courses, each of three days duration, will be held in 1983, 1984 and 1985 respectively. They will be conducted by members of the respective curriculum committees where possible in consultation with the Unesco/UNFPA Regional Adviser, and will be balanced in distribution so as to ensure at least one course in each Division each year.

All secondary schools will have the relevant reference materials, curriculum materials, and teacher's aids within the first half of 1983, and many of the teachers will have been using the materials before their in-service training. In this way the training will have more practical relevance, and the 'cross-fertilization' of ideas and solutions to problems will enhance the substantive content of the courses. By the end of 1985 all required teachers will have received in-service training.

Summary

Some units related to population education are already in use in Fiji schools. However, there are others still in trial form that focus on population phenomena, issues and problems which need to be revised, printed and distributed. In addition, teachers need to be trained to use the population education materials developed. It is hoped that the project, which calls for the printing and distribution of some very important and relevant units in population education, along with teacher education in population education, will lead to a greater awareness and understanding of population phenomena amongst the students.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

PAPUA NEW GUINEA*

Population situation and characteristics

Papua New Guinea, consisting of the eastern part of New Guinea, the world's second largest island, together with numerous adjacent islands and archipelagos, has an area of 462,800 square kilometres. Papua New Guinea's total population in 1980 was 3,006,799, which represented an increase of over half a million people since the last census in 1971. The average annual growth rate between 1966 and 1980 was estimated to be 2.3 per cent.

The majority of the population is indigenous. They are mainly of Melanesian stock, comprising over 1,000 tribes with more than 700 languages, although pidgin English is spreading rapidly as the lingua franca. Some provinces, such as the Southern Highlands, the Simbu and the Enga Provinces have high population densities. For some clans in these provinces there may be as many as 300 people making gardens in only one square kilometre of land. East New Britain and East Sepik also have areas of high population density. In other provinces like the Western Province, the West Sepik Province and the Gulf Province, there are very low population densities. There may be as few as one person for every two square kilometres of land. The average population density in 1980 was six persons per square kilometre.

In Papua New Guinea, the areas which have most people have the least growth in towns. Towns are important for providing wage employment opportunities to those people who have no access to land for rural farming, but in Papua New Guinea the people with least access to land for rural farming also have least access to wage employment in towns. It should also be noted that only one quarter of Papua New Guinea's land area is topographically suitable for agriculture.

Papua New Guinea's population is predominantly rural. In the 1980 census 86.9 per cent of the people were in the rural areas while 13.1 per cent lived in urban areas. The Table on the following page shows the estimated growth of the rural village, rural non-village and urban sectors of

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*** Taken from: Sub-Regional Workshop on Population Education in the South Pacific, Suva, Fiji, 1-12 October 1979. *Report.* Bangkok, Unesco, 1980. 159 p.**

the population between 1971 and 1986. It has already become obvious, however, that the urban areas are not increasing in population as rapidly as was anticipated.

Estimated growth of the rural village, rural non-village and urban sectors of population: 1971-1986

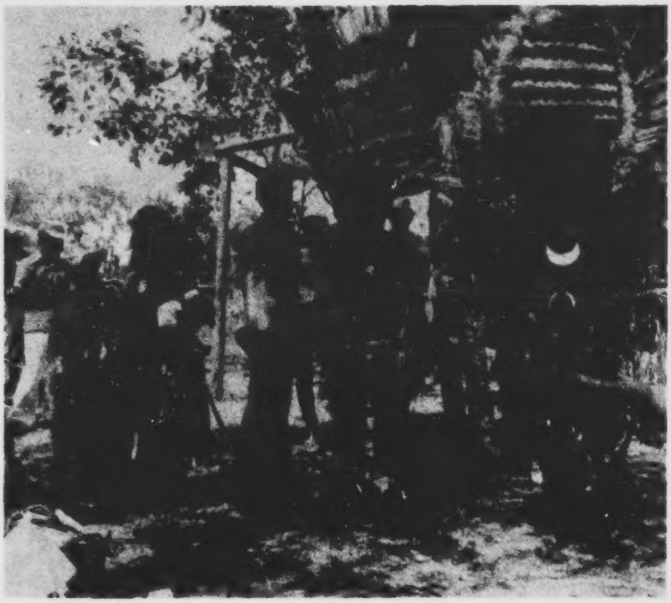
Population	1971	1976	1981	1986
Rural village	1,982,700	2,097,900	2,233,200	2,400,600
Rural non-village	222,600	318,000	436,400	585,700
Urban	230,200	393,100	607,600	884,900
Total	2,435,500	2,809,000	3,277,200	3,871,200

A breakdown of Papua New Guinea's indigenous population by age grouping shows that almost half of the total population are children under 16 years of age. These people must depend on adults for basic necessities like food, clothing, shelter and education and health services. Thus almost half the total population are consumers without producing anything themselves. This is a very heavy dependency burden for the country.

Expenditure on education is the largest of the federal budget. In 1975, there were 77,000 seven-year-old children in Papua New Guinea. However, only 68 per cent were able to go to school. For children aged 7-13, 57 per cent were enrolled in primary schools and only 17 per cent were able to go on to high school.

The sex ratio in Papua New Guinea showed 52.3 per cent males and 47.7 per cent females in the 1980 census. In the urban areas, however, males substantially outnumber females, 58.1 per cent to 41.9 per cent, indicating sex-selective migration to urban areas. The ratio, male to female in the rural areas was 51.5 to 48.5 in 1980.

In relation to family planning, a wide range of contraceptive services is offered through the Department of Health's community health (nursing) services. Doctors offer tubal ligations, vasectomies, injectable contraceptives and intrauterine devices. Aid-post orderlies and supervisors in the countryside distribute simpler contraceptives, such as condoms and pills; stores in rural areas are encouraged to store and sell condoms. Mobile units of maternal and child health workers also distribute contraceptives in the villages. In 1976, all the hospitals, two thirds of the health centres and sub-centres and nearly one third of the aid posts were providing various types of family planning services. The new acceptors of family planning services during the fiscal year 1975-76 only represented 2 per



cent of the women in the childbearing years. However, a significant growth in numbers suggests that many feel the need for these services. The main impediment to further progress is the lack of resources.

The status of population education

Papua New Guinea has a Population Action Programme which is the responsibility of the Office of Environment and Conservation. The programme has three main stages. These are:

1. Research and education;
2. Policy formation; and
3. Policy implementation.

Papua New Guinea is still in stage one of this programme. Research is being carried out to collect much-needed demographic data. This research includes studies on migration, the effects of population growth on land use and nutrition, urban and rural house surveys, and fertility, mortality and contraceptive usage. Various research projects on these topics are being carried out in different parts of the nation. The Government will formulate a suitable National population policy based on the results of this research. Meanwhile, a public education programme on all aspects of population growth is being co-ordinated by the Office of Environment and Conservation.

This education programme has, as its objectives, to educate national, provincial and community leaders, school students, village and urban dwellers on the need to:

1. Space births in order to improve maternal and child health;
2. Choose a family size commensurate with the resources of the family and the nation;
3. Influence population growth rates in order to reduce the dependency ratio in the total population and to reduce the strain imposed by rapid population growth on education and health services, land use and employment opportunities;
4. Integrate the provision of family planning services with attempts to educate and motivate people to use these services; and
5. Develop programmes which will cope with population growth and distributional changes.

The population awareness campaign

The education programme, or population awareness campaign, has four main areas of activity. The first is the staging of provincial workshops. The aim of these workshops is to create an awareness among provincial leaders of the effects of rapid population growth on their development objectives so that these effects can be taken into account when planning for the province. The methods of approach used in these workshops are still being experimented with. There can be no uniform approach because Papua New Guinea has a great diversity of cultures and people and there is no uniform national population problem. Some provinces are overpopulated while others are underpopulated.

Participants at the workshops include Provincial Government Assembly members (between 20 and 30 in each province), Local Government Councillors, key provincial public servants and representatives of some community groups. During the workshops, the effects of rapid population growth on such features as education and health services, land, employment, agriculture, social development and planning are considered. It has been found more effective to concentrate on the effects of rapid population growth from the provincial rather than the national point of view. The workshops also try to help the public servants to take population growth into account when planning for the province. Through discussion groups the public servants are able to make the politicians more aware of how rapid population growth affects development while the politicians are able to share their fear and anxieties about population control with the public servants. Priorities for the province can be established and plans for attacking population-related programmes such as nutrition and family planning programmes can be discussed at these workshops.

The second area of activity of the population awareness campaign is the production of a full-length population film called *Maribe*. The film was written in pidgin English (a language spoken by 43 per cent of the population according to the 1971 Census) and is designed to be shown by the Office of Information in rural villages throughout the country. Many situations shown in the film will be familiar to village people who will have had similar experiences. For example, Maribe's first wife dies because she is weak from having too many children; his three sons cannot go to school; his eldest son leaves the village to find employment in a town—only to get caught up with a gang of thieves; another son is killed by a neighbouring clan while trying to make a garden in their swampy land; the whole family eventually has to leave its own clan land and resettle elsewhere because of a land shortage.

Radio programmes are the third area of activity in the campaign. A series of radio interview programmes is being produced where the emphasis will once again be on communicating with people in their own situation. Thus the interviews are in local languages and deal with examples and problems at a provincial level. In addition to these radio programmes, short situation radio dramas have been improvised by the National Theatre Company in pidgin in the National Broadcasting Commission studios. The six situations depicted include clan fighting in a context of land/population pressure; food shortage and malnourished children; a migrant who goes to town but cannot find work; and a woman who dies in childbirth. Short family planning 'commercials' have been produced by the National Broadcasting Commission in English for the national network. Transcriptions of these have been sent to provincial stations for translating and broadcasting in the provincial indigenous language. A local song writer has been commissioned to write and record a population song for radio broadcasting. The last major area of activity in the Population Awareness Campaign is the production of population plays which are performed by folk theatre companies in rural areas.

The Office of Environment and Conservation has produced a number of publications such as *The effects of population on development*, a handbook for extension workers, and *A growing population in Papua New Guinea*, a booklet designed for less-educated sections of the community. Posters relating to population education have also been produced and distributed through various provincial agencies.

Population and family planning education is already a part of the curriculum of the general nursing, midwifery nursing, health education, nutrition, family health education, community health, nursing education and administration courses of the Health Department. The handbook for extension workers has been distributed to a number of provincial extension training institutions, including agricultural colleges and nursing schools, for incorporation into their courses.

The in-school situation

As far as the status of population education within the formal education system is concerned there has been no overall attempt to include population education at every stage in the curriculum. Only in the community life syllabus for community schools has this been done. There is a brief reference to the advantages of small families in grade VI health. This is the only other direct reference to the subject in the community schools syllabus. The secondary curriculum contains some population related material in the science course (Units 8.11–Growth and reproduction and 9.5–Ecology). There is also a substantial section on population problems in social science Unit 10.1. In the national high schools course, the subject is dealt with indirectly in the grade XII science major course, and directly in the grade XII science minor course.

The population studies in the community life syllabus are summarized as follows:

Population studies in the community life syllabus, grades II–VI
for community schools in Papua New Guinea

Grade	Unit heading	Summary of unit
II	Families and clans	1. Counting people around us 2. Where have people come from in the past 3. What do people need
III	The village	1. Counting the people in the village 2. Where do people go to and come from 3. Meeting people's needs
IV	Age groups in the community	1. Counting people in different groups 2. Varying sizes of groups and communities 3. More needs for more people
V	Population in the province, effects of growth	1. People in the province 2. Population growth 3. Effects of population growth
VI	Population in the nation, future growth	1. Counting people 2. People in the nation 3. Population control

The population studies in the community life syllabus looks at the number of people in different sized groups and the resources these people will use. Other aspects of population such as migration, population growth and population control are also studied. A problem will be faced in implementing these population studies because the community life syllabus for grades IV, V and VI contains such a lot of material. It is difficult for teachers to cover the contents of the syllabus. On the other hand, although more than eight lessons each year are devoted to the population studies component, it will be difficult to teach the population studies component adequately in only eight lessons a year. The structure of the community life syllabus is based on the idea that a child's contact and understanding begins at home among his own family. As he grows older, he gradually moves out to the world around him and learns about places beyond his immediate surroundings. This structure is reflected in the population studies in the syllabus. The child starts by considering population at a family and clan level. He then moves on through village and provincial level studies to study population from a national viewpoint in grade VI.

Students have to wait till grade X of their social science course before they study population from a world perspective. In the grade X work, students spend about one week looking at the population explosion and its consequences. In addition to this global study, students also examine the population situation in Papua New Guinea. This work is part of a larger unit called 'Man: the environment and the future' which looks at some of the major global problems being faced at this time. The grade VIII social science syllabus is now being rewritten. It is intended to include a small section on population in a unit on 'National social change'. The grade IX science unit on 'Ecology' deals with the effects of population on the eco-system. However, the grade XII module from the minor science course looks directly at the population issue. It starts with work on demography and follows this by considering the attitudes and values people have towards the population issue. Students then study the Papua New Guinea population situation and finally take a look at prospects for the future.

Needs in population education

On the one hand, it could be said that needs in population education cannot be defined until the Government has formulated its national population policy. On the other, the objectives of the population education programme drawn up by the Office of Environment and Conservation could be regarded as a statement of the needs in population education.

Population education in countries of the region

Within the formal education system, the needs of population education have, in one sense, already been defined by the syllabus. What is required now at the community school level is the preparation of lessons based on the syllabus content and at secondary level there is a need for a small unit on population for the grade VIII social science syllabus.

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Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

SOLOMON ISLANDS*

Introduction

The Solomon Islands comprises a scattered archipelago of mountainous islands and low-lying coral atolls stretching approximately 1,450 kilometres in a south-easterly direction from Bougainville, in Papua New Guinea. The archipelago covers an area of about 751,000 square kilometres, of which the land area is approximately 29,800 square kilometres. The six major islands are Choiseul, New Georgia, Santa Isabel, Guadalcanal, Malaita, and San Cristobal. They are characterized by precipitous, thickly-forested mountain ranges, intersected by deep, narrow valleys; Guadalcanal being the only one to have extensive coastal plains.

About 90 per cent of the Solomon Islands population are Melanesian, the remainder, in order of population numbers include Polynesians, Micronesians, Europeans, Chinese and people of other racial origins. The population of the capital, and the largest township, Honiara, on Guadalcanal, at the time of the 1976 census was 14,993 (provisional). With an annual birth-rate of 3.5 per cent, 50 per cent of the population are under 14 years of age. The Melanesians live on the larger islands, nearly 60,000 on Malaita, while the Polynesians live on the small islands or atolls. There is a slow movement away from the more crowded islands. Most villages are on or near the coast, but there are large 'bush' populations in the interior of Malaita and Guadalcanal.

Size and rate of growth

At the 1976 Census, the population of the Solomon Islands was 196,823, compared with 160,988 in 1970. Melanesians made up 93.3 per cent of the population in 1976, Polynesians 4.0 per cent, Micronesians (Kiribati) 1.4 per cent, Europeans 0.7 per cent, Chinese 0.2 per cent and others 0.7 per cent.

The observed annual growth rate between censuses of 3.4 per cent is one of the highest in the world. This growth rate is equivalent to doubling the population every 20 years.

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* Taken from: Sub-Regional Workshop on Population Education in the South Pacific, Suva, Fiji, 1-12 October 1979. *Report*. Bangkok, Unesco, 1980. 159 p; and the Project Document for SOL/80/PO2.

Table 1. Average percentage annual growth rate of Solomon Islanders by ethnic origin

	1959/31	1970/59	1976/70
Melanesians	1.0	2.4	3.5
Polynesians	0.7	3.3	3.4
Micronesians	–	17.8	2.6
	1.0	2.6	3.5

Age distribution

Age distribution is one of the best indicators to future population size. The table below demonstrates the change in age structure between 1970 and 1976.

Table 2. Population by age groups and percentage of total at each level: 1970, 1976

Age	1970	%	1976	%
0 – 14	71,761	44.6	94,178	47.8
15 – 29	40,685	25.2	47,495	24.2
30 – 44	25,641	16.0	28,636	14.6
45 – 59	14,279	8.8	16,585	8.4
60+	8,632	5.4	9,920	5.0
Total	160,998	100.0	196,823	100.0

Vital statistics

Vital statistics rates are most important in making estimates for future population sizes as they also indicate what is causing changes. The rising birth-rate and falling infant mortality rate are significant in the following figures.

	1970	1976
Crude birth-rate (per 1000 people)	41	49
Crude death-rate (per 1000 people)	12	12
Infant mortality rate (per 1000 births in age group 0-1)	73	60
Life expectancy–male	59	n.a.
Life expectancy–female	43	n.a.

The future

The population in 1976 was 197,000 while the projection for 1985 is 268,000. That is a net increase of 71,000 people over the nine-year period or an annual growth rate of 3.3 per cent. If this growth rate continues until the year 2000 the population will be 343,000 or more than double that of the last census. The figure in 1985 of 268,000 is arrived by studying the fertility rates at the last census.

Table 3. Fertility rate of women by age group: 1975

Age group	Number of women	Live births	Births per 1,000 women	Percentage of age group
15-19	9,266	1,117	121	12
20-24	7,505	2,312	308	31
25-29	6,859	2,380	347	35
30-34	5,526	1,793	324	32
35-39	4,574	1,074	235	24
40-44	3,621	540	149	15
45-49	3,263	172	53	5
Total	40,614	9,388		

Table 4. Number of women in the age group 15-49

1970	1976	1980	1985	1990	1995	2000
34,930	40,614	45,846	53,050	52,200	72,700	85,500

The fertility rates shown above indicate the prospect of rapid population growth. At a certain point, even with a reduction in fertility, the number of live births itself will cause concern as the infant mortality rates continue to drop. If the population continues growing at such a rate then the economy will be stretched beyond its limits. More and more people are demanding better opportunities, more employment, better health facilities, improved levels of education and more food. With society changing to a more monetary-based type, customs breaking down and people having to move to other islands, other inherent problems will emerge.

The 1976 figures show that approximately 48 per cent of the population are under 15 years of age while the potential labour force (15-49 years) amounts to only 42 per cent. By 1985 it is estimated that the potential labour force will have grown to 109,160, an increase of 14,982 but the number of children (0-14) will have increased by 37,465 to 131,643. This means that the growth rate of the labour force will be only 3.1 per cent compared to a 3.8 per cent per year growth in the 0-14 age group. This will tend to produce considerable pressures not only in relation to development but also in providing basic services. Nine per cent or 18,200 of the population were in monetary employment in 1978. By 1985 to maintain present levels, 24,200 will have to be in monetary employment, so another 6,000 jobs will have to be created.

In 1976, 28,700 or 60 per cent of school age children were attending school. By 1985 to maintain that level, school places will have to be found for 31,100, an increase of 2,400. Increasing the number of schools to keep up with enrolments means providing more teachers. In 1976 the ratio of enrolments to teachers was 23 : 1, so by 1985 this means that 104 more teachers will be required.

In 1978 there were six hospitals (with approximately 660 beds) and 130 clinics. This gives a ratio of 320 people per hospital bed and 1,640 per clinic. By 1985, to maintain this ratio, the number of hospital beds must increase by 180 and the number of clinics by 33. There were 466 nursing staff in 1978–a ratio of 1 : 460 people, so by 1985, to keep the ratios the same, there will be a requirement for a 25 per cent increase in nursing staff.

Out-of-school population education

In the out-of-school sector there are certain organizations which include aspects of population education. The Solomon Islands Planned Parenthood Association (SIPPA) is moving away from the clinic-based to a more integrated approach which includes nutrition, health education, and contraceptive advice. The Solomon Islands Women's Interest Group works closely with SIPPA in achieving the objectives of this integrated approach. There is also an input by the health education section of the Ministry of Health and Medical Services which uses an integrated approach in working closely with the Women's Interest Group in the areas of sanitation, water, village health, aid worker training, nutrition, and immunization programmes.

In-school population education

At the present time, population education in the Solomon Islands is not offered as a separate subject. There is an element of integration of aspects of population education in the in-school sector, specifically the secondary school system. There are two types of secondary schools presently operating in the country; the national secondary system consisting of a five-year course, and the provincial secondary schools. Social studies in national secondary schools deals with population growth as one of the world's many problems, while in provincial secondary schools, development studies focuses on population in the Solomon Islands, not so much as a problem but as one of many factors affecting choices in development. The ILO population comics used in the schools emphasize employment rather than population. Home economics is common to both systems, including some 'family spacing' discussion and health topics. In science and agriculture, principles of spacing and distribution are dealt with but not with an analogy drawn to family planning.

The Solomon Islands Population Education Project

The Ministry of Education, Training and Cultural Affairs (MET) will be embarking on a project titled, Population Education and Awareness. The long-range objectives of the project are:

1. To promote greater awareness of the causes and consequences of population phenomena in the Solomon Islands;
2. To enable the formal education system in the Solomons to deal more appropriately with population and related phenomena; and
3. To promote greater interest and involvement of parents in the formal education system.

It is hoped that these objectives can be achieved by:

1. Sponsoring national and provincial seminars for decision-makers on the relationship between education and population, at three levels:
   a) the implications for education services of population growth,
   b) the teaching of population phenomena within the formal school system,
   c) the imparting of population awareness via informal education activities;
2. Conducting in-service and pre-service training for primary and secondary school teachers to enable them to teach about population and related phenomena;
3. Developing curriculum materials and teaching aids for appropriate primary and secondary subjects (social studies, domestic science, biology, mathematics and development studies) and providing reference books in suitable locations for teacher reference;
4. Promoting communication and co-operation between parents and teachers in the development and implementation of population education activities; and
5. Promoting consideration and possible use of alternative forms of non-formal education on population and related issues (via the agenda of national and provincial seminars).

A two-day National Seminar, to be held in August 1982 will involve about 300 decision-makers and opinion leaders—70 from Honiara and 230 from the provinces. The topics addressed will involve the implications of population growth on educational services and considerations of formal and non-formal population education issues and concepts. The purpose of the seminar will be to raise awareness of population issues at the highest levels in the country and how they relate to both the requirement for and content of education.

A Project Co-ordinator will then commence to develop curriculum materials for both primary and secondary levels. This will involve extensive travel at first, observing classes and talking with parents and teachers about their interest and educational needs in this area. The co-ordinator will visit primary, national secondary and provincial secondary schools, and work with and take guidance from appropriate curriculum co-ordinating committees at both primary and secondary levels. Discussions will also be held with the teaching and curriculum staff at the Solomon Islands Teachers' College (SITC), where the co-ordinator will be based.

It is expected that by early 1983 the first curriculum materials will be ready for printing in draft form for in-school trials; in April for primary teachers and June for secondary teachers. Curriculum co-ordinating committees and the respective subject consultants will be closely involved in the development process.

During the process of development of curriculum materials the co-ordinator will conduct a series of provincial 'seminars' to raise awareness of population issues at the provincial level and to start to prepare both teachers and parents for the proposed curriculum innovations. Seminars will enable local people, parents and appropriate teachers, to talk about what they each expect of the schools with respect to population education and what informal education activities they see as appropriate to supplement school programmes. This information will be fed into the curriculum development process. The seminars will be held in the first term of 1983 and participants will be identified and contacted by the Provincial Education Officer, with the assistance of the clerk to the province. The MET currently has plans to hold meetings of teachers of the same subject at the provincial level in the first term holidays. When appropriate, these meetings will become the provincial seminars by the addition of parents to the group. The concept can be flexible–involving both primary and secondary teachers and parents. It is important that parents be involved, both to increase their commitment to formal education and to encourage non-formal activities which will supplement those of the schools.

Another peak of activity of the project will be in June–August 1983 when the annual in-service training of some primary teachers takes place in Honiara, and trainee teachers take their places and test out new curriculum materials. The primary level population education materials will be tested at this time and in-service training will involve population education components. Also at this time (July) the secondary teachers in the country will gather in Honiara to be introduced to population concepts and any curriculum materials developed at that stage.

After August, the final refinements to the primary and secondary curriculum materials will be carried out by the co-ordinator, and produced under his/her guidance before the end of the year. The finalization will take into account the comments of teachers, parents, and Honiara Technical Institute and SITC staff and will be done in close co-operation with the appropriate curriculum co-ordinating committees. The project will conclude at the end of 1983 with the distribution of the materials throughout the educational system.

In summary, the work plan for the major activities is as follows:

National Seminar	August 1982
Development of first draft curriculum materials	Sept -Dec 1982
Provincial seminars for teachers and parents	Feb -May 1983
Curriculum materials trials	Feb -Aug 1983
In-service training of teachers, both primary and secondary	June-Aug 1983
Finalization of curriculum materials	Sept -Nov 1983
Mass production and distribution of materials	Oct -Dec 1983

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

TONGA*

Introduction

The Kingdom of Tonga consists of some 169 islands and islets scattered over an area of 700 square kilometres. The islands to the east, including the main island of Tongatapu, are mainly formed of limestone and are low-lying, being seldom more than 30 metres above sea-level, while those to the west are volcanic with a few rising to 1,000 metres.

Awareness of the population factors of births, deaths and migration and their effects on and relation to the well-being and activities of a community is a recent phenomenon in Tonga. The reason is that it is only in the second half of this century that population changes have become sufficiently marked to attract attention. In the past, there was very little change in Tonga's population, either in size, composition, or distribution. The birth rate was more or less equalled by the death rate. Tonga was too small, too poor in economically profitable resources and too isolated from the world's trade routes to attract the colonizing interests of either the world's powers or its neighbours while transport between the scattered islands was too slow and difficult to permit large scale movement either within, or to and from Tonga.

Therefore, it is only in the second half of this century that Tonga has really emerged from its geographic isolation to participate more actively in regional and world affairs. This increased contact has brought many significant changes to Tonga's population. Its size has doubled in the last 25 years, during which time improved transportation has greatly facilitated both internal and external population mobility. Urbanization, emigration and tourism are only some of the overt effects of this mobility. These population changes have been significant enough to stimulate not only national awareness of population factors, but also serious concern about their implications.

This paper looks first at the growth of Tonga's population over the last few hundred years, then at the population patterns today, and finally it considers the needs of population education and its attendant problems.

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* Taken from *Population education in the South Pacific:* Report of a Sub-Regional Workshop, Unesco Regional Office for Education in Asia and the Pacific, Bangkok, 1980.

Population growth—historical perspective

Tonga's population, before 1600, grew at a very slow rate and remained more or less constant over the 200 year period between 1600 and 1800. In the following century however, the civil wars, which interrupted food production, resulting in periods of acute food shortages, and low resistance to newly-introduced European diseases, were effective factors in the reduction of Tonga's population. When Captain Cook visited Tonga in the 1770s the population was about 30,000. By 1900 it had declined to 20,000. While the first 50 years of this century saw a population increase, there has been unprecedented growth since 1950.

E.A. Crane,[1] in his analysis of the Tongan population situation, attributed the rapid increase in this century to the following:

1. Law and order had been set up and the settled government of a united Tonga under King George Tupou I allowed for peaceful development;
2. The well-established Christian Church had stimulated the desire for personal improvement and education;
3. Trade and commerce had improved living standards, with more money for food and improved housing; and
4. With improved health measures, modern hospitals, better medicines and child welfare, more babies were surviving, and people were living longer.

Tongan customs and culture have contributed in no small measure to population growth, but this aspect will be discussed later. The rapid growth is continuing. Between 1966 and 1976, the population increased from 77,000 to 90,000, an increase of 16 per cent. (See Figure 1).

Population patterns

The 1976 Census gave a total population of 90,126 for Tonga. An analysis of the data of the 1976 Census and the other two official censuses of 1956 and 1966 reveals some interesting patterns and trends. Some of these are the discrepancies in the recorded and predicted figures for the sub-total and total population, age distribution, male/female composition of the population, geographic distribution, racial composition, occupational distribution, and migration and urbanization. This section will briefly look at each of these in turn.

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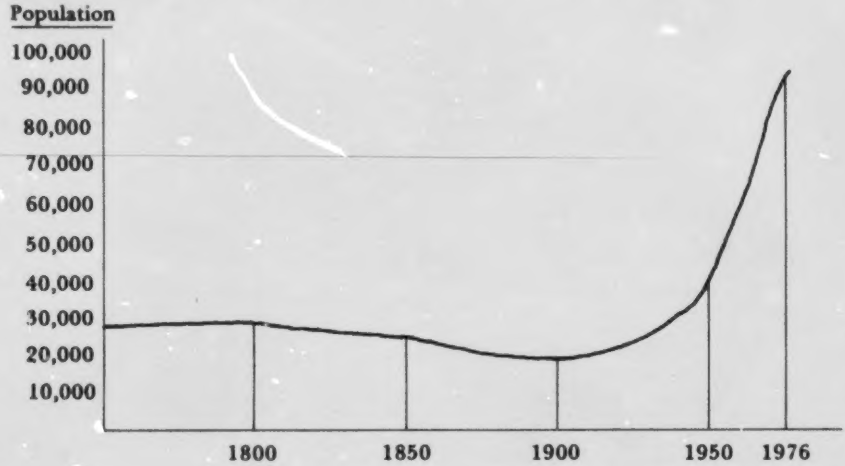
[1] Ernest Arthur Crane. *The geography of Tonga: a study of environment, people and change.* Nuku'alofa, Wendy Crane Publisher; Friendly Islands Bookshop, Distributor, 1979. 76 p.

Figure 1. Line graph showing population growth in Tonga



1. Disparity between official census figures and forecasts made

The 90,126 population total for Tonga in 1976 constitutes an increase of 16.4 per cent on the 1966 population figure but it is much lower than many of the forecasts made during the late 1960s, early 1970s and mid 1970s, which predicted figures of 100,000 and over.

The main problem with population prediction as relates to Tonga is the lack of proper records. Official figures are not always valid records of population factors. For example, a comparison of the 1976 with the 1966, 15-and-over age groups, reveals that 14,335 people who were enumerated in 1966 had 'disappeared' by 1976. These discrepancies are not fully accounted for by the official death and migration figures for the period. There is reasonable doubt about the validity of the number of deaths recorded in the annual reports of the Ministry of Health and Justice Department. The actual recorded deaths for the period 1966–1976 of 2,547 may have actually been an understatement. There is similar doubt about the validity of the migration figures.

However, although there is some doubt about the accuracy of the details, the broad patterns indicated by the data remain valid.

2. Age distribution

The 1976 Census revealed that most of Tonga's population are young people. Forty-five per cent of the Tongans were below the age of 15, as these figures show.

Age groups	1976	
0 - 4	12,947)	45 per cent
5 - 14	27,515)	
15 - 64	46,969)	55 per cent
65 +	2,697)	

The 45 per cent, however, constitutes a slight drop from the 1966 figure which was 46 per cent. A closer look at the details of age distribution in the 1976 Census indicates that the birth rate is dropping. There is no way of telling whether this trend will continue but it may be explained in terms of the Family Planning Movement, increased migration and grow-affluence, which are resulting in changed values and attitudes towards family and kinship ties. Table 1 shows the drop in birth rate.

Table 1. Comparison of 1966 with 1976 census age figures

	1966	Per cent	1976	Per cent
0 - 4	14,356	18.5	12,947	14.4
5 - 14	21,465	27.7	27,515	30.5
15 - 64	39,187	50.6	46,969	52.1
65 +				
	77,429	100.0	90,126	100.0

There has been a significant dropping off of the 0-4 age group proportion from 18.5 per cent (1966) to 14.4 per cent (1976) which reflects the drop in births. The rise in the 5-14 age groups from 27.7 to 30.5 per cent and 50.6 to 52.1 per cent respectively reflects the flow-through effect of earlier high birth rates. The slight reduction in the proportion of the 65+ age group does not augur well for an increasing life expectancy for the Tongan population.

3. Sex composition

Table 2 shows some interesting patterns. The males are predominant in most age groups. The expected exception is in the older age group where the females predominate. The unexpected exceptions were in the 25-29 and the 30-44 age group where females formed 51 per cent of the total. This probably reflects migration patterns and may have affected the birth rates.

Table 2. Male/female by age groups

Age	Male	Female	Per cent of total
0 - 14	20,870	19,168	44.4
15 - 29	11,971	11,601	26.1
30 - 44	6,504	6,800	14.7
45 - 59	4,395	4,178	9.6
60 - 74	1,850	1,727	4.0
75 - 85+	430	560	1.1
NS	37	35	0.1
	51.1 per cent	48.9 per cent	100.0

4. Geographic distribution within Tonga

Most of Tonga's population is in Tongatapu which had 63.7 per cent in 1976; up from 62 per cent in 1966. The remainder of the people live on Vava'u (16.7 per cent), Ha'apai (12 per cent), Niuas (2.6 per cent) and 'Eua (5.0 per cent). 'Eua, with 32 per cent, recorded the greatest population change during the period 1966–1976, followed by Tongatapu with 20 per cent. Ha'apai recorded the lowest with only 2.1 per cent change. The Trend is likely to continue during the 1976–1986 decade and beyond.

5. Racial composition

Tonga is very much a single ethnic country and this is reflected in the racial composition of the population. Ninety-eight per cent of the entire population is of Tongan descent.

6. Occupational distribution

The 1976 Census defined 21,435 people as being in the labour force (18,626 actively working and a further 2,809 'actively looking for work'). This labour force represents 23.8 per cent of the total population, compared with 24.7 per cent in 1966 and 25.1 per cent in 1956. There was only a 12.8 per cent increase in actual numbers on the 1966 figures although the total population increased by 16.4 per cent.

There are several interesting points about the labour force:

a) Female participation rates showed a 205 per cent increase in the number of economically active women. This was an actual increase of 2,260, from 1,098 (1966) to 3,358 (1976) whereas the Male Labour Force had increased only 1 per cent from 17,900 (1966) to 18,077 (1976).

b) The occupational profile of the 1976 Census Labour Force showed a significant shift, in both numerical and proportional terms, from the agricultural to the non-agricultural sectors.

The following table highlights the comparison and change of principal occupations.

Table 3. Population by occupation

Census	Agriculture		Non-Agriculture	
	Number	Per cent	Number	Per cent
1956	10,303	72.2	3,967	27.8
1966	14,064	75.2	4,638	24.8
1976	9,425	50.6	9,201	49.4

c) The 1956 and 1966 Censuses assumed there was no unemployment; if a man was not formally employed then he was a farmer. The 1976 Census enumeration required a specific response indicating that a person was not simply working for personal or family purposes but was engaged in work for pay or gain.

d) The distribution of 'employment' over the five districts is generally proportionate to the overall population distribution, as this table shows.

Table 4. Employment and population by districts

	Tongatapu	Vava'u	Ha'apai	'Eua	Niuas
Employment	64.1	17.1	11.3	4.8	2.7
Total population	63.7	16.7	12.0	5.0	2.6

7. Migration and urbanization

a) *Migration.* The number of Tongans who migrated between 1966 and 1976 is difficult to determine. The official records probably underestimate the number. It is also difficult to predict whether the high rate of migration will continue into the next decade or not.

The official record shows that almost 25,000 people left Tonga between 1969 and 1974 in increasing numbers from 1,500 in 1969 to 7,200 in 1974. This represents 25 per cent of the entire population and 40 per cent of all adults. New Zealand was the destination for 11,342 migrants, comprising 8,356 males and 2,986 females. The remainder migrated to the United States of America, Canada and Australia and other Pacific Islands.

There is no record of how many emigrants have returned to Tonga. There is reason to believe that about half the number, who went to New Zealand, have returned home. A similar number would have returned from other countries. The net migration for the period would probably be about 15,000

b) *Urbanization.* The population of Tonga's capital Nuku'alofa increased fivefold over the 40 year period to 1979 when it reached 18,396. Almost one quarter of all Tongans live there. Its daytime population swells to far more than this as hundreds of workers and sellers of handicrafts and agricultural produce commute to it by bus from all the villages of Tongatapu. During the year, its population is artificially inflated by hundreds of school children who come down from the northern islands every academic year to attend secondary schools.

The rapid growth of the population of Tongatapu and Nuku'alofa has been due more to migration from other parts of Tonga than to natural increase.

8. Population issues

The changes in population in the second half of this century have raised a number of issues and problems.

a) The rapid growth of the population, as indicated by the fact that it doubled in 25 years, has greatly increased the demands on social services, such as health and education. The efforts of the country to provide these services for its growing population is retarding development and placing severe strains on its economy.

b) Land, one of Tonga's main resources, is diminishing as its population increases. By law, every male who reaches the age of 16 is entitled to 3.33 hectares of bush allotment. Today, it is very difficult for males of 16 to acquire this bush allotment to which they are entitled. Recent legislation has been passed to confiscate the land of those who have become citizens and permanent residents of other countries and although this will make more land available it will by no means meet the present demands.

c) Heavy migration from the rural areas is resulting in overcrowding in the capital, which in turn is creating serious administrative, economic, social, legal and environmental problems. At the same time, the movement of the most able and productive people from the rural areas is in fact depriving those areas of human resources, as well as needed development.

d) The percentage of productive people is diminishing while the percentage of dependent people is increasing. This means that a decreasing number of people have to produce a great deal more to support an increasing number of dependants.

e) Development is not keeping pace with population growth. The result is increasing unemployment especially among school-leavers, and a high rate of migration, especially among the productive males. Migration has resulted in a tremendous increase in the number of 'broken' homes due to males going off overseas on short work permits and never returning.

Tonga must be the only country which balances its foreign trade with remittances sent home by Tongans working overseas. Although the money means better housing and better living standards, these in themselves will never be adequate compensation for the loss of a stable home life. The fact that female participation rates in the labour force have increased in the 1966–1976 period by 205 per cent may merely be an indication that more and more women are being forced to work to support themselves and their children while errant husbands overstay in New Zealand, Australia, or the United States.

Population education—its status in the formal and non-formal sectors

It is only recently that there has been an awareness of the need for population education. Many of the population concepts which are presently taught in both primary and secondary curricula were not specifically included to promulgate population education. An examination of the content of likely subjects such as social science, history, geography, biology, basic science, home economics, health education, and mathematics, indicates that these subjects do in fact teach many population concepts. For example, Fifth Form geography requires a study of population changes within Tonga. Form I home economics looks at the special qualities which differentiate homes from mere 'houses'. The Form IV social science has a special unit on family planning. However, there is no overt emphasis on population education concepts nor on the relationship of these concepts either to the development of quality of life, or life styles of any particular group.

If population education is a newcomer to the in-school situation, it is even more so to the out-of-school situation. There are, however, two other ministries involved in community services. Within the Health Department the Family Planning Unit looks after birth control and population education generally; the Public Health Division looks after sanitation and the education of the public in this aspect, while the District Nurses work with mothers in the villages in the areas of child-care, hygiene and nutrition. The Agricultural Department has an Extension Section which includes home demonstrators who work with the village people to improve home skills.

In the private sector, there are both inter-denominational groups and church bodies, especially women's and youth groups, which are assisting villagers to develop and improve standards of living and vocational skills. However, there is no attempt to co-ordinate these efforts and they tend to be fragmented and repetitive. A national organization of women has recently been set up and there are plans to establish a national youth organization. Either one of these two bodies could provide the infrastructure for the out-of-school situation.

Problems and issues

There is no denying that there is need for population education. The population issues discussed earlier clearly indicate that population changes are impinging on the processes of development and are already affecting the quality of life of the Tongan people.

However, although this is acknowledged, there is some hesitation about a full-scale adoption of population education programmes. The main reason is cultural. The whole structure of Tongan society and its culture is based and dependent on the kinship system and the extended family. Many of the social services provided in other countries by an impersonal social services system—such as child welfare and care for the aged—are in Tonga, provided by the extended family. The continuance of this system depends on large-sized families. Population control is, of course, only one aspect of population education, but the official adoption of population education in Tonga might well depend on this one issue. Therefore, although Tonga is willing to adopt a population education programme, and although it agrees in principle that the emphasis ought to be on the out-of-school programme, which would have immediate impact, it also acknowledges that such a programme would need wide communal and political support. There is insufficient evidence at present that such support would be forthcoming.

Requirements for an in-school programme

Tonga's main efforts in population education concentrate on the in-school programme. The aim is to enrich the existing curricula to include population concepts. The main constraints on the adoption of such a programme is lack of expertise and resources. It is therefore necessary to:

1. Train curriculum developers who would be capable of understanding population concepts;
2. Identify suitable concepts for introduction at the various levels;
3. Select the most suitable content areas in the existing curricula through which these concepts could be introduced;
4. Select the most suitable learning activities through which these concepts could be taught;
5. Select suitable methods for teaching these concepts;
6. Select suitable resource materials for teaching the concepts; and
7. Make available the resources, both human and material, that would facilitate the development and implementation of such a programme. The assumption is that materials would have to be developed, written and printed for use by teachers and students at all levels of the primary and secondary school systems. It is also assumed that all teachers who would be involved in the implementation of the programme would be trained in the philosophy, content, and methodology of the materials.

In order to undertake these activities, the Government of Tonga has requested assistance from UNFPA and Unesco, and it is hoped that a project in in-school population education will soon be started.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

THE TRUST TERRITORY OF THE PACIFIC ISLANDS (TTPI)

Population situation and characteristics

The area of the Pacific still known as the Trust Territory of the Pacific Islands is also part of Micronesia ('tiny islands'). The most striking feature of the geography of the TTPI is the vastness of the space encompassed within its borders. With over two thousand islands and atolls, TTPI covers more than 3.9 million square kilometres of the Pacific Ocean. However, only 89 of the islands and atolls are inhabited—with a total surface area of only 1345 square kilometres.

Consisting of two island chains—the Carolines and the Marshalls, the group was formerly divided into six districts for administrative purposes—Kosrae, Palau, Ponape, Truk, Yap, and the Marshall Islands.* Since 1981, however, when the trusteeship agreement with the U.S. expired, the districts became three independent entities—Palau (Belau), the Federated States of Micronesia (FSM) consisting of the states of Ponape, Kosrae, Truk and Yap and the Marshall Islands. Each entity has its own government, but their relationship with the U.S. remains strong, and a 'compact agreement' with the U.S.A. is still being negotiated.

The estimated mid-year population of the TTPI for the years 1970, 1973, 1977 and 1980 is shown in Table 1.

Table 1. Resident population of the Trust Territory by state: 1970, 1973, 1977 and 1980

	Federated States of Micronesia							
Year	Kosrae	Ponape	Truk	Yap	Total	Marshall Islands	Palau Islands	Trust Territory Total
1970	3,620	17,390	28,540	7,020	56,570	22,080	11,290	89,940
1973	3,989	18,889	31,265	7,617	61,760	24,135	12,160	98,055
1977	4,470	21,190	35,220	8,480	69,360	27,100	13,520	109,980
1980	4,940	23,140	38,650	9,320	76,050	29,670	14,800	120,520

Source: *Quarterly Bulletin of Statistics,* Trust Territory of the Pacific Islands, Office of Planning and Statistics, Vol. III, no. 2, 1980.

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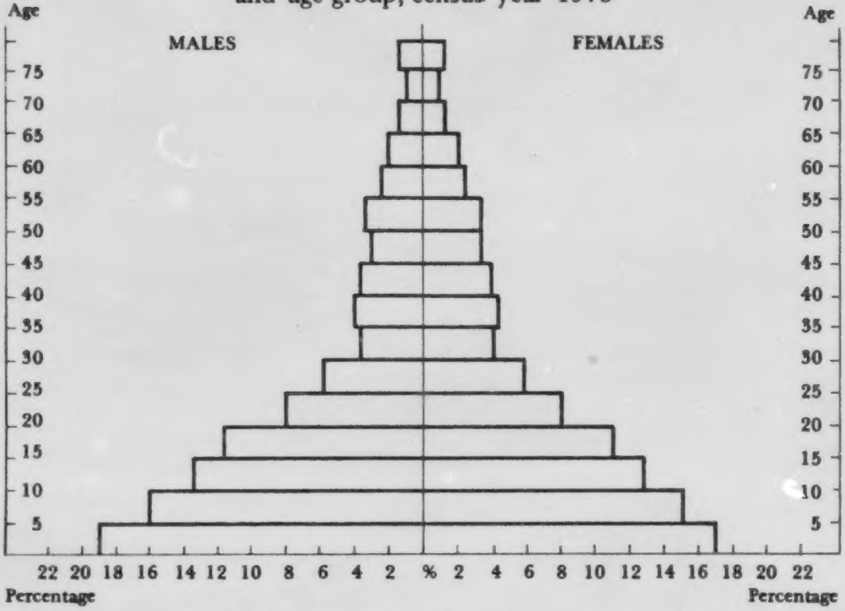
* The United States of America was given responsibility through a trusteeship for the administration of the TTPI by the United Nations.

It will be noted that the increases in population in the TTPI over the years shown have been dramatic. While the total population of the TTPI in 1980 was relatively low (120,520) by world standards, the needs and problems of these countries are no less urgent due to limitations of arable land and resources, and their relative isolation.

Figure 1. Population of the Trust Territory by sex and age-group, census year 1973



Source: *Quarterly Bulletin of Statistics,* Trust Territory of the Pacific Islands, Office of Planning and Statistics, Vol. III, no. 2, 1980.

The above data illustrates the exceedingly youthful character of the population—in 1973 over 47 per cent of the population were under 15 years of age. Furthermore, the median age of the population, 16.2 years, was among the world's youngest. Particularly significant is the fact that 72 per cent of all females were under the age of 30, representing an extremely high fecundity. This is evident in the high birth rate of the islands—31.1 per thousand in 1977—as shown in Table 2.

The demographic data shows that the population of the TTPI is growing at an extremely rapid rate, which has serious implications for economic and social development. The district centres are growing at a much faster rate than other geographic regions. Each of the entities in the TTPI is composed of a district centre, intermediate area, and outer islands.

Table 2. Population, births, deaths, infant deaths
Trust Territory of the Pacific Islands, 1970–1978

Year	TTPI population (see Note*)	Births total	Deaths total	Infant deaths (under 1 year)	Rates		
					Crude birth	Crude death	Crude infant death
1970	89,700	3,224	530	62	35.9	5.9	19.2
1971	92,430	3,197	409	105	34.6	5.3	32.8
1972	95,160	3,470	526	104	36.5	5.5	30.0
1973	97,600	3,482	464	15	35.7	4.7	33.0
1974	100,760	3,494	505	101	34.7	5.0	23.9
1975	103,870	3,605	519	120	34.7	5.0	33.3
1976	107,000	3,402	448	71	31.8	4.2	20.9
1977	109,644	3,415	570	126	31.1	5.2	30.5
1978	113,480	2,534	393	71	22.3	3.5	28.0
1970/78 Average		3,313.7	484.9	86.1	33.0	4.9	28.0

* Note: Population figures are taken from TTPI Office of Planning and Statistics estimates based on the 1967, 1973 and 1977 census. See *Bulletin of Statistics,* Vol. I, no. 1, and Vol. II, no. 1.

Source of birth and death data: Birth and Death Certificates filed with the TTPI Bureau of Health Services, Office of Medical Records and Vital Statistics.

The district centres tend to be much more westernized than the other subdivisions due to greater exposure to outside influences. Hence, they tend to attract a large number of intermediate and outer island residents seeking entry into the money economy, better education, and a chance to improve their standard of living. Although the district centres cannot be classified as 'cities', due to the in-migration they experience many of the problems associated with urban areas–overcrowding, the breakdown of traditional support structures, poor living conditions and unemployment. The net effect of the in-migration to these centres compounds the problems related to rapid population growth, causing a deterioration of the quality of life enjoyed by the people. At the same time, it creates a shortage of manpower in the outer islands, depressing their economy.

While the countries of the TTPI are clustered under the umbrella of Micronesia and are populated mainly by Micronesians, they are not homogeneous. Cultures differ from one entity to another, and even from one island to another in the same entity. There are nine recognized major languages and many dialects. Furthermore, life and culture are different for people living on volcanic mountains and those living on coral atolls. However, there are many commonalities in attitudes and practices, especially relating to population—extended family relationships, family size, and generally strong conservative attitudes toward change.

The Governments of Palau, the Federated States of Micronesia (FSM) and the Marshall Islands, however, have recognized population as an important factor in development. Hence, each has embarked on projects in population education in order to bring an awareness of the interrelation between population and development and the quality of life to leaders and school children. It is hoped that the results will lead to rational decision-making in regard to population-related problems.

Population Education and Development in Palau*

Background

Palau consists of 200 islands and 458 square kilometres of land stretching about 200 kilometres from the northern tip of Babelthuap (the biggest island) to the south beach of Angaur. Far south is New Guinea and the Philippine Sea. As of mid-1980 the population was estimated to be 14,800, growing at the rate of 3 per cent per annum.

The biggest enterprise in Palau is the business of government, with the district government employing more than 1,500 people. The economy is based primarily on agriculture, marine resources and tourism. Subsistence farming is predominant, as most of the land areas are covered by rocky mountains. Marine and fishery resources are not fully harnessed.

In the Referendum of 12 July 1978, Palau opted to be a separated country, rejecting the options of being part of the Federated States of Micronesia (FSM) or part of the United States of America. Subsequently, the Department of Education, in re-examining its curriculum to make it more relevant to the needs of Palauans and to contribute to the country's development efforts, expressed an interest in enriching its curriculum with population content. The long-range goal of the project is to make the young people and adults realize that population is an important factor for the development of their family, community and country.

Immediate objectives

1. To identify population-related problems through a survey, and to find out if such problems are being met by the existing curriculum materials.

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* Taken from Project Document for TTP/80/P05

2. To make key leaders aware of population as a key factor for development.
3. To enrich existing school subjects with population education content that is in accordance with prevailing values of Palauans.
4. To provide a forum where the 16 magistrates (government representatives) and their counterparts (traditional chiefs) may discuss village problems, such as population-related problems.

Project activities

1. Research on population-related problems

A survey will be conducted on population-related problems. Sampling of respondents from the villages in Palau and from Koror, the capital town, will be conducted to identify population-related problems. The curriculum will then be analysed to find out if such materials are designed to provide youngsters with information on how to cope with such problems. The report of the study shall serve as one of the main working papers for a seminar and workshop.

2. Seminar on population education

A two-day seminar in early June 1982 involving about 15 policy and decision makers in education and allied fields will be convened primarily as an orientation to population education, as well as for them to prepare possible guidelines for the introduction of population education in the formal school system and in adult basic education.

3. Workshop on the integration of population education in existing subjects

a) *Curriculum and materials development.* A month-long workshop will be convened immediately after the seminar. Representatives from private schools and 16 public schools, as well as subject coordinators will be invited to the workshop. A population education curriculum will be developed for integration with different subjects as well as appropriate prototype instructional materials.

b) *Experimental trial use.* The curriculum and prototype materials will be tried out from September 1982 to May 1983.

c) *Evaluation revision workshop.* In June 1983, an evaluation and revision workshop will be convened. Feedback from the try-out will be studied and needed revisions done prior to printing and dissemination.

4. Seminar on village leadership

In Palau, there are 16 villages /municipalities—each having two leaders, namely the magistrate (representing the government) and the traditional chief (often hereditary). Two meetings of these leaders will be convened in July 1982 and January 1983 mainly for purposes of sharing their experiences in solving village problems, such as population-related problems. The meeting places shall be in a village setting, not in Koror.

Population Education in the Federated States of Micronesia (FSM)*

Background

The Federated States of Micronesia consisting of Kosrae, Ponape, Yap, and Truk has a total land area of about 700 square kilometres. The four states, however, are spread out over 1,600 kilometres of the Pacific Ocean. In mid-1980 the population was estimated to be 76,000 and the rate of growth about 3 per cent meaning that if this growth rate continues the population will double in about 23 years. With its limited resources, such a population increase would pose serious problems. Population education, therefore, is seen as one way of affecting the fertility behaviour of the future citizens of the FSM. However, in view of the sensitivity of population education and the fact that the FSM is composed of four states with different socio-cultural orientations, it was decided that before launching a population education programme, there should be a series of seminars at the state level, and later at the national level. Hence the development of a project consisting mainly of awareness and orientation to the potential of population education to prepare young students and adults to cope with population-related problems.

Project activities

1. State-level seminar on population education

State-level seminars on population education will be organized in Ponape, Kosrae, Truk and Yap (Ponape and Kosrae will be organized jointly). The heads of the big schools, key officials of the State Bureau of Education, religious leaders and community leaders will be involved in this seminar. The nature of population education will be discussed, along with the population situation in each state. It is hoped that future plans for population education will also be discussed.

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* Taken from Project Document for TTP/80/P03

2. National seminar on population education

While the state-level seminars are necessary to cater for the peculiar needs of the four states, a national seminar is necessary to provide a forum for a meeting of representatives from the states. Five representatives from each of the states, who provide leadership in their state-level seminars will be invited to the national seminar. The seminar shall consist mainly of: (1) sharing of experiences in population education; (2) assessing needs and requirements in population education; and (3) recommending proposed national action plans for population education.

3. Population education instructional materials

Appropriate population education instructional materials will be purchased and distributed to the libraries of the FSM Division of Education, Department of Social Services; to the State Bureau of Education; and to selected elementary and secondary schools.

Population Education in the Marshall Islands*

Background

The Marshall Islands dot the Pacific Ocean between the Caroline Islands to the west and Hawaii to the east. With 180 square kilometres of land laced over 465,000 square kilometres of ocean, the Marshalls constitute the eastern gateway to Micronesia. Of the 33 main islands and atolls, 23 are populated. The Marshalls are administered from the district centre of Majuro. Some of the islands, though, are more than 900 kilometres from Majuro.

The Marshall Islanders have recognized that population is an important factor for development. Unplanned population growth is viewed as one probable obstacle to development efforts. In mid-1980, the population of the Marshall Islands was estimated to be about 29,670, with about 11,000 in Majuro. The Ministry of Education developed plans for a pilot project in population education as one possible intervention strategy for coping with population-related problems. The goal of the project is to make young people and adults realize that unplanned population growth could adversely affect the development of the family, community, and the nation.

Immediate objectives

1. To make policy and decision makers aware of the dimensions of population-related problems, and what population education has to offer in helping young people and adults cope with such problems.

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* Taken from Project Document for TTP/80/P04

2. To develop prototype curricula and instructional materials illustrative of the inclusion of population content in selected school subjects and adult education programmes.
3. To expose key education officials and selected teachers and adult education teachers and workers to various aspects of population education.
4. To orientate local leaders (magistrates) on the value of population education programmes.
5. To help build up the population education libraries of selected schools and offices in the Ministry of Education.

Project activities

1. Seminar on population education

Policy and decision-makers. A seminar on population education involving about 25 policy and decision-makers and religious leaders will be organized during the first week of July 1982 in Majuro. The seminar shall consist mainly of the following topics:

a) Concepts, goals and role of population education;

b) Experiences in population education, particularly in the Pacific region;

c) Actual and potential roles of each ministry/department in coping with population-related problems; and

d) Possible policy guidelines in population and population education.

Education officials and selected teachers. A parallel seminar for key education officials and selected teachers as well as adult education workers/teachers will be organized at the same time as the seminar for policy and decision-makers. The proposed programme of activities will be as follows:

a) Presentation on concepts, goals and functions of population education;

b) Exposure to the whole range of curricula and instructional materials in population education developed in Asia and the Pacific;

c) Discussion on the perceived possibilities for the enrichment of different school subjects and adult education programmes; and

d) Discussion on alternative approaches to curriculum and instructional materials development in elementary, secondary and adult education.

2. Prototype curricula and instructional materials workshop

Immediately after the seminar, a workshop will be convened for about three weeks for about ten specialists from elementary, secondary, and adult education. Appropriate sample instructional materials—teachers' guides, supplementary readers/materials and radio programme scripts, will wise be developed.

3. Seminar on population education for local leaders

To ensure full utilization and acceptance of the adult education programmes to be enriched with population content, a seminar involving magistrates (elected villager atoll leaders) will be convened just before the experimental trial using the materials in different villages/atolls. This orientation seminar will enable the adult education teachers and workers to explain the value of the programme to these local leaders and hopefully obtain their full support in its implementation.

4. Experimental trial use and evaluation workshop

During the school year 1982-83, these materials will be tried out in selected schools. Appropriate evaluation instruments will be developed for this purpose. In July 1983, a workshop with the ten people who developed the materials and at least ten others who tried out the materials, will be convened. The workshop will not only evaluate the materials but will make the necessary revisions, and if need be, develop additional materials which will then be printed for wider dissemination.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

INNOVATIVE EXPERIENCES IN POPULATION EDUCATION: A SYNTHESIS

Introduction

By and large, the authors of the country papers on population education were modest in their claims about innovative experiences. In reading their reports, however, one cannot help but appreciate how, in many ways, population education programmes have been conceived and implemented as educational innovations. Innovation in this regard implies something new and different—a departure from traditional practices. Population education has been used as a means for curricular reform, thus giving rise to something new in education, and a vehicle for change in educational content and methods leading inevitably to something different. More important, it is an educational programme designed to contribute to the solution of one of the most serious problems confronting mankind, i.e. the population problem.

However, because population education in the region was not started at the same time in each country, what is innovative in one country may, in fact, be traditional in another. There are, however, innovative experiences brought about by population education which have distinctly meant renewal and renovation in education in many countries. These experiences have tended to make population education a more effective contribution to the alleviation of population-related problems. This part of the *Bulletin* highlights some of these innovative experiences in population education.

Orientation to national development goals

Most of the countries implementing or planning population education programmes view their projects as an integral part of their national development plans. Each population education programme derives its mandate from the country's population policy, which is an integral part of the total development plan. The population education programme is also consistent with and supportive of the national educational goals.

In Afghanistan, population education is considered as one means of enhancing the quality of life of the people. Hence, all the different agencies implementing development programmes are either already integrating population content in such programmes or are planning to do so.

Rapid and unplanned population growth in Bangladesh has been identified as the main cause for the dismal socio-economic conditions in which the country is helplessly trapped. Multi-sectoral population projects are aimed at solving the population-related problems of the country.

In China, planned control of population growth is considered as the most important step towards attaining the country's four modernizations in industry, agriculture, science and technology and national defence. To help carry out the population policy and for the Ministry of Education to contribute to national development efforts; students in secondary schools, otherwise known as middle schools, are taught population education.

The primary goal of the population education project in India is to gear the entire educational system to the realization of the potential role of education in the developmental efforts of the country.

The population education project documents of Indonesia show that population education is one of the projects in the five-year development programme, the goal of which is, 'bettering the economic, social, spiritual and environmental conditions on one hand, and on the other checking the rapid population growth . . .'

Population programmes, (including population education) in Malaysia are designed to contribute directly or indirectly towards the achievement of the Government's aim to slow down the growth of population in the country, in order to improve the standard of living and thus uplift the quality of life of all Malaysians.

The project document in population education by Nepal states that:

> The high rate of population increase will nullify the development efforts of the country to improve the quality of life of the people. His Majesty's Government has already recognized the need to reduce the rate of population growth which has been reflected in different Five-Year Plans. The draft guidelines for the Sixth Plan (1980-1985) have also included a separate section on population.

In Pakistan, the overall objective of the population education programme is to enable the education sector to contribute to the implementation of the Government's population policy of lowering the birth rate, which is viewed as one potent means for hastening the country's development.

The population education project of the Philippines is linked to the development plan, as evidenced by the recognition that high population growth takes vital initial resources from the economy's development efforts.

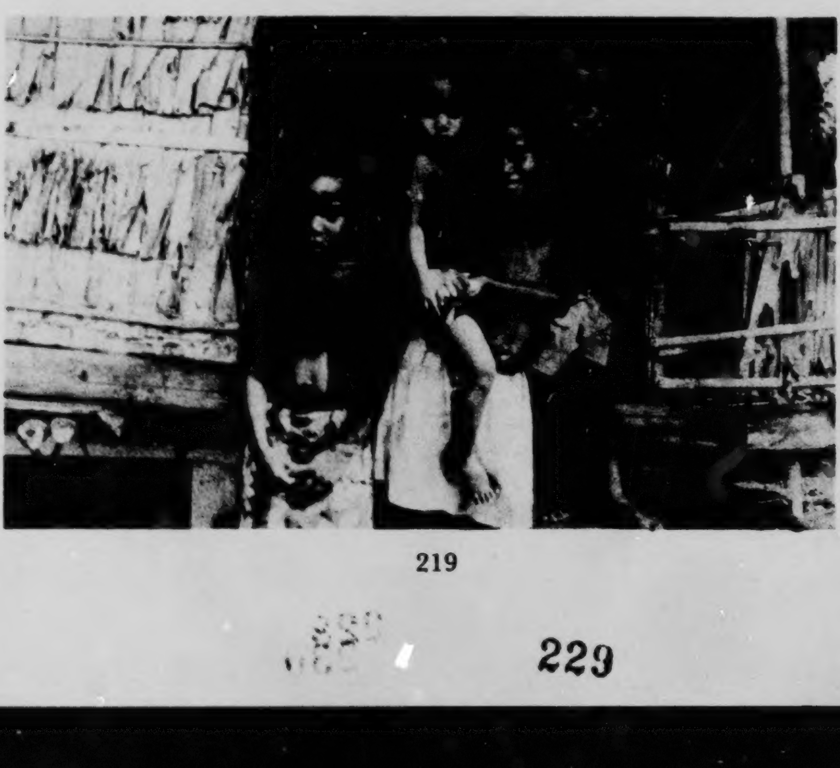
The Republic of Korea developed its Five-Year Plan in Population Education, as an essential part of the national population policy in the context of the Fourth Five-Year Economic Development Plan (1977–1981).

The Government of the Socialist Republic of Viet Nam has recognized the importance of population education, and has shown keen interest in launching the programme, as a component of the New Education Reform.

Sri Lanka links its population education programme to national development efforts. The Five-Year Plan (1972–1976) states, among other things, that 'the present level of births has led to a heavy strain on the country's resources'.

In Thailand, the population education programme is anchored on the country's population policy, issued by the government in March 1970, which is clearly development oriented. The population policy speaks about helping 'solve various problems related to the very high rate of population growth which constitutes an important obstacle to the economic and social development of Thailand'.

Similarly, the countries in the Pacific region which have launched population education programmes such as the Federated States of Micronesia, Fiji, the Marshall Islands, Palau, the Solomon Islands and Tonga; view population education as a component of development and educational plans.



For as long as population education is seen as one intervention strategy for development, it shall be a key component of educational programmes of Member States.

Curricular renovation through population education

Many countries in the region have taken the position that the content and methodology of their school curricula at the primary, secondary and tertiary levels could be renovated using population education as one of means.

In the Republic of Korea, population education is perceived by educators and teachers as an innovation in that the instructional materials have a wide knowledge base, are interdisciplinary in orientation and are based on multi-disciplinary research. Population education content is woven in relevant disciplines in a very systematic and coherent structure. The instructional materials are oriented towards changing attitudes and values, and therefore appropriate teaching methodologies and evaluation of learning are used.

Besides, by virtue of the fact that population education is integrated in existing school subjects, it has become inevitable that its innovatory impact also happens in other subjects. These changes include a more systematic approach to curriculum and materials development, provision of a variety of instructional materials and audio-visual aids; the use of the multi-disciplinary approach to curriculum and materials development; the use of a variety of teaching methodologies, such as the discovery approach, and the use of multi-disciplinary research as a basis for curriculum and materials development. Increased attention to the evaluation of the affective domain has also been noted.

In the Philippines, population education was considered as innovation for the following reasons: [1]

a) It provided an example of a curriculum that is multi-disciplinary. It has served as a catalyst to interdisciplinarity.

b) The systematic approaches to curriculum and instructional materials development have been exemplary. These include (i) the identification of population concepts or skills to be integrated with social studies, health education, home economics, science and mathematics; and the determination of natural plug-in points in these subjects. In the Philippine experience in this regard, the

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[1] Unesco. Co-ordinated Action Programme for the Advancement of Population Education (CAPAPE). *Study of the contribution of population education to educational renewal and innovation in El Salvador, the Republic of Korea, Philippines and Tunisia.* Paris, 1980.

> integration of population content 'did not savour of any artificial accommodation in regard to either the old content or the new content, and did full justice both to the new content that was introduced and also the subject area that lent itself for the purpose of introducing the new content'.

There was also a continuity in the subject matter (population education) introduced both within different subject areas and in each grade and also between different grades in order to ensure integrated learning, progressively increasing in complexity.

The teachers' guides in population education use a variety of teaching strategies such as discovery, value clarification, role playing, brainstorming, buzz sessions, case studies, small group discussion and surveys (i.e. interviews). While population education is by no means the first to use many of these methods, concrete opportunities for their use with carefully designed teaching units were provided in the teacher's guides in population education. Many of these methods were demonstrated and tested out in training sessions. By virtue of international funding available in population education, researches on the effectiveness of the discovery and modular approaches to teaching have been conducted, such as the studies done at the College of Education, University of the Philippines. Value clarification, one of the most important process skills in population education also received special attention as a result of a seminar at the College of Education, University of the Philippines.

The integration of population education with existing subjects such as social studies, health education, home economics, science and mathematics has had a renovatory and beneficial effect. Population education, did not only have impact on elementary and secondary school subjects, but on college courses as well. The format of the PEP syllabus which includes: (i) objectives, (ii) content outline, (iii) suggested learning experiences, and (iv) instructional materials–becomes a model for other syllabi at the college level.

In Thailand, when the Ministry of Education decided to revamp its curriculum in 1978 the broad view of population-related problems was conceived as one of the main foci of the problem and life centred, and process centred curricular reforms. In the elementary school, the emphasis is on moving away from bookish, academic and teacher-centred processes towards a practical, life-centred teaching/learning process. The traditional subjects have been replaced by four integrated groups of experiences, namely basic skills (language and computation), life experience (focused on social problems such as population and environment) and character education, and work experience (pre-vocational skill training).

On the other hand, the secondary curriculum has largely been transformed to become a terminal education rather than preparation for higher education for a privileged few. The courses are semi-integrated. The five clusters of courses, in the lower secondary are as follows:

a) Language (Thai and foreign);

b) Science and mathematics;

c) Social studies, of which 'population education' is one elective course, besides the integration of population content with all the social studies courses;

d) Character development (health, physical education and art); and

e) Work education (work and employment).

The in-school curricular reform partly draws from the success of the literacy programme in Thailand, launched in the early 70s. It was found that the adult illiterates are motivated to learn the three R's and family planning only if it is seen to be instrumental in helping to solve their basic problems such as health and environmental conditions and ways to increase rice production and improve marketing skills. Hence, the new approach to adult education is now commonly known as functional literacy. It is in the context of these curricular reforms in both formal and non-formal education, that the project, Population Education Programme: Formal and Non-Formal, THA/78/POL was formulated, and subsequently funded by UNFPA and executed by Unesco. Population education addresses one of the 11 social problems under life experiences. At secondary level it is part of social studies, one of the five semi-integrated curricular areas. 'Population education' is also one of the elective courses at secondary school.

Teachers are being trained to use the real-life problem and process-centred approach, using population problems as one of the illustrative models. It is assumed that, by and large, the process for solving most social problems is basically the same.

The population education pattern being used in Thailand shows that there is no need to sacrifice the quality learning when using an interdisciplinary approach, particularly in the development of instructional materials. The fund of knowledge of the social sciences (anthropology, sociology, economics, political science and history) as well as those of the natural sciences are used extensively in an effort to ensure a better understanding of the causes and consequences of population problems.[2]

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[2] UNFPA. *Needs assessment report; draft.* 1981.

Interdisciplinary integration

The fact that population education has a broad-based orientation and can only be most effectively and meaningfully studied if viewed within the total context of quality of life, requires that it should be taught by using an interdisciplinary approach. Invariably the experience in the region is to integrate population education with existing disciplines in formal and non-formal education programmes. This is briefly discussed below.

Formal education. The youth are the hope of the future, and the schools are expected to nurture such hope. If population education is indeed one intervention strategy for development, then the in-school youth must be introduced to it. In most countries where population education has been introduced for the first time into the school curriculum, it is not offered as a separate discipline and population content is integrated with existing school subjects.

Integration takes three forms, namely the sub-unit approach, infusion and permeation.

a) *Sub-unit approach.* This involves the preparation of a teaching unit to be added to an existing unit in the course syllabus of the subject area which is used as the carrier of population education. This is being followed by countries such as the Philippines, the Republic of Korea, and Thailand.

In the Philippines, a sub-lesson is prepared about the family, dealing with such issues as the composition of a family, reasons for needing a family and effects of family size on some needs of the family. This sub-lesson is integrated under the topic 'Family' which already exists in the grade I social studies programme. Similar sub-units were prepared to enrich existing units in the course guides of other subject areas such as health education, science, home economics and mathematics from the elementary level to the fourth year of high school. These sub-lessons have been printed in separate publications which are distributed to teachers who have been trained how to use them.

In the Republic of Korea, a sub-lesson on population increase and health management dealing with such issues as problems of health management in densely populated regions and the lack of exercise caused by a crowded and congested population is integrated under the topic 'Health management' in health education in the first grade of the middle school. Because these sub-lessons come as separate materials from the mother subjects, pupils' materials and teachers' guides were prepared to help teachers take the sub-lesson when the topic for that lesson is to be discussed.

In Thailand, a sub-unit on population called 'Family life' is integrated into an interdisciplinary course called 'Life experiences' which is offered in the elementary grades I to VI. The content selection centres around the problems and needs within the context of Thai society in the past, present, and future in regard to issues bearing upon health, population, politics, government, society, religion, culture, economics, technology, natural environment and communication.

b) *Infusion.* This involves enriching and expanding existing units in the syllabi of the accommodating subject areas to include population education related ideas. It substitutes already existing materials with new examples to illustrate a new point or a new approach adopted in the teaching of population related topics in existing syllabi. Through substitution of examples, the education content remains the same, only the substance of the example has changed. This approach is being used in many countries in combination with other approaches of integration.

Those countries which are using the infusion method have done it either by actually incorporating population education content in the textbooks or publishing it separately as teachers' guides and syllabi to be used by the teachers when they teach the mother subjects. Quite a number of Asian countries have developed various teachers' and pupils' guides, curriculum guides, and other instructional materials to assist the teachers to infuse population education into a particular mother subject.

c) *Permeation.* The curricula of selected subjects are overhauled to allow for the permeation of relevant ideas. This allows for full integration of population education content with each curriculum thus making it an integral part of the subject matter.

The following table summarizes how various Asian and Pacific countries are using the integration approach in introducing population education concepts to various subject areas at different grades at the elementary and secondary levels. Most of the countries are using a mix of the three modes of integration.

Table 1. Summary of integration of population education by subject and level in countries within the region

Country	Grades	Subjects of integration
Bangladesh	IV–XII	**Bengali, natural science, social science, home economics and social welfare, mathematics, vocational and technical education**
Fiji	Form 1–4 (Secondary level)	**Social studies and biological science**

Table 1. Summary of integration of population education by subject and level in countries within the region (cont'd)

Country	Grades	Subjects of integration
India	I–V (Primary level)	Social studies, environmental studies, general science, mathematics, language
	VI–X (Secondary level)	Civics, geography, biology, general science, Hindi, economics, social studies
Indonesia	IV–VI	Natural science, *pancasila* (morality), social science, religion
	VII–XII	Natural science, religion, geography, *pancasila*, sports and health, economic co-operative
Malaysia	IV–IX	Science, geography, civics, history, health education, mathematics (in primary schools), and home science (in secondary school)
Nepal	IV–IX	Social studies, geography, science, home science, health and *panchayats* (local government)
Pakistan	I–X	Social studies, geography, mathematics, health education, home economics
Philippines	I–VI	Social studies, health education, elementary science, mathematics and home economics (in grades V and VI)
	1st and 2nd year of high school	Social studies, health education, mathematics, home-making and science (in the second year)
	3rd and 4th year of school	Social studies and health education
Republic of Korea	IV–XII	Social studies, home economics, physical education, geography and science
Sri Lanka	VI–IX	Science, mathematics, health education, social studies and language
Thailand	I–XII primary	'Life experiences'
	Lower secondary	Social studies and in an elective course called 'population and environment'
	Upper secondary	As a separate elective course in the general education schools and a required course in vocational education schools.

Non-formal education. Cross-cultural studies have consistently shown that, in general, fertility behaviour is inversely related to people's level of education. The higher the educational attainment, the lower their fertility rates. In some studies, however, it was shown that the fertility rate is significantly higher for people with just a little formal education as compared to those with no formal education at all.

Fortunately, many countries in the region have evolved a variety of non-formal education programmes that are carried on outside formal schooling. They receive strong political support and are, therefore, more likely to succeed. In many countries, population education is getting a 'free ride' on such development programmes. This is not seen as an added burden but rather as a benefit. It is like the little birds that ride on water buffaloes. The riders are welcome because they eat or drive away flies and other insects that prey on the animal.

The integration approach in non-formal and other development programmes is also premised on the assumption that it is an exercise in futility to teach population education to the ill-fed, ill-clothed, ill-housed and sick. These vestiges of poverty could be effective blinders to the messages of population education.

Population education is also being integrated into various development programmes throughout the region as recommended by different seminars and conferences from time to time. In discussing the relevance of population education concepts to the contents of development programmes and the modes of incorporation, the participants of the 1978 Consultative Seminar on Future Directions of Population Education felt that:

> Population education for the out-of-school sector acquires more relevance when interwoven into areas that preoccupy or interest the learners or are viewed as a solution, if not a remedy, to day-to-day problems. Population education, therefore, has been integrated in various non-formal education programmes including literacy and adult education programmes, labour training and education, agricultural extension, food and nutrition campaigns, skills development, social welfare drives, environmental education, urban renewal, manpower development, and rural transformation and development.

However, the interpretation of the concept of integration varies from programme to programme and country to country, especially with reference to curriculum and materials development. In general, countries have integrated population education into many development programmes following either one or a combination of the approaches described on the following page.

a) *Separate course approach.* The programme organizers who follow this approach have generally developed a separate course on population education and made such course an integral part of the curriculum of ongoing development programmes. This approach is mostly found in the training curriculum for field functionaries, and in some cases the teaching of out-of-school youth and adults. The examples of countries and programmes which follow this approach include the Population Education Project for the Out-of-School Youth of Bangladesh; the Population Awareness and Sex Education Project of the Philippines and the Population Education Projects of the University of Tirupati and the University of Madras, India.

b) *Infusion approach.* This is a rather difficult approach requiring high level professional competency at all the stages of the process of curriculum and materials development. However, the programmes which have opted for this strategy have succeeded in demonstrating the relationships between population issues and the quality of life of the individual, the family and the community. This approach is currently being tried in various countries in the region especially in those conducting literacy and rural development programmes. A partial list of the countries experimenting with this approach is given below:

i) Functional literacy programmes of Afghanistan, India (Uttar Pradesh–Literacy House, Lucknow; West Bengal–Bengal League), Iran, Nepal, Pakistan and Thailand.

ii) Rural development and vocational preparation programmes in the Philippines, such as the Agricultural Approach to Family Planning Project of the International Institute of Rural Reconstruction (IIRR), the Vocational Preparation Programme of the National Manpower Youth Council, the Home Economics and Food Production Programme of the Bureau of Agricultural Extension, and the Small Farmers Development Programme of the Ministry of Agrarian Reforms.

c) *Core learning kit approach.* This approach calls for the development of general curriculum and appropriate teaching/learning materials to meet the learning needs of the out-of-school population. This approach differs from the separate course and infusion strategies in the sense that it neither advocates the infusion of population education concepts into other disciplines nor does it form a unit within any other discipline. Instead, the advocates of this approach identify common areas of interests and needs of various categories of target audiences, predetermine sets of relevant population education concepts, translate them into a series of learning activities and prepare appropriate teaching/learning materials. All of these materials are then compiled in the form of modules or guides referred to as 'core learning kits'.

The field workers of various development departments are then provided training in the contents of the kit and their use in the field, especially emphasizing to the users the need for adapting the contents and the teaching/learning materials to varying socio-cultural contexts. At present, the Non-Formal Education Directorate of Indonesia is using this approach.

The following table summarizes country experiences in integration of population education with which the Unesco Regional Office for Education in Asia and the Pacific has been associated.

Table 2. Summary of country experiences

Country	Target audience	Project/programme
Afghanistan	Out-of-School Youth and Adults	Six educational programmes of the General Agency for Literacy Campaign (GALC), namely (i) General Literacy Programme; (ii) Literacy Programme for Women; (iii) General Agricultural Programme Integrated in Co-operatives; (iv) Programme of Complementary Education; (v) Educational Programme for Out-of-School Children; and (vi) Follow-up Materials Programme.
Bangladesh	Out-of-School Youth and Adults	Population Education for Out-of-School Youth, Department of Social Welfare; Mass Education (Literacy) Programme of the Ministry of Education.
India	Adults	National Adult Education Programme of the Ministry of Education.
	Out-of-School Youth and Adults	Population Education Projects of the University of Madras; Family Life Education Programme of Literacy House, Lucknow; and Integrated Child Development Services Scheme, Institute of Public Co-operation and Child Development.
Indonesia	Out-of-School Youth and Adults	Educational Programmes of the Directorate General of Out-of-School Education and Sports, namely: (i) Learning Package 'A' for Literacy and Numeracy Skills; (ii) Basic Education; (iii) Family Life Education; and (iv) Leadership Training and Programmes of Government and Autonomous Bodies such as Department of the Armed Forces, Department of Religious Affairs, *Muhammadia* (the Muslim scholars) and the Indonesia Council of Churches.

Table 2. Summary of country experiences (cont'd)

Country	Target audience	Project/Programme
Iran	Out-of-School Youth and Adults	National Literacy Programme
Malaysia	Women and Pre-School Children	Family Health and Family Life Education through the Family Development Project of the Community Development Division, Ministry of National and Rural Development.
Nepal	Adults	Population Education in the National Adult Education Programme, Ministry of Education.
Pakistan	Adults	Population Education Programme of the Population Division Integrated Rural Development Programme of the Division of Rural Development, Government of Pakistan, and Functional Literacy Programme of the Allama Iqbal Open University.
Philippines	Out-of-School Youth and Adults	Population Awareness and Sex Education (PASE) Project in the Integrated Human Resource Development Programme for Youth (IHRDPY) of the Bureau of Youth Welfare, Ministry of social Services and Development; Population Education Project of the Rizal Youth Development Foundation; and the Vocational Preparation Programme of the National Manpower Youth Council; Population Education Programme of Y.W.C.A.; the Foundation for Youth Development in the Philippines.
	Out-of-School Youth and Adults	Educational Programmes of the Office of Non-Formal Education, and Population Education Project of the Ministry of Education; Functional Education Project of the Philippine Rural Reconstruction Movement; and Population Education Programme of the Population Centre Foundation of the Philippines.
Republic of Korea	Out-of-School Youth and Adults	Population Education Programme of the Korean Educational Development Institute.
Thailand	Out-of-School Youth and Adults	Under the project Population Education in the Formal and Non-Formal Sectors, programmes are in action for integrating population education into Functional Literacy, Agricultural Extension and other Non-Formal Education Programmes.
Turkey	Army Officers and Conscripts	Population and Family Life Education for Army Officers and Conscripts.
	Out-of-School Youth and Adults	Population Education in the Systems of Population Education at the Ministry of National Education.

Summary statement. It is true that population education is only one of the variables for development, but it is perhaps the most important one. If the so-called 'development pill' is to have a miracle effect, it appears that population content should be a vital ingredient of it. Population programmes, including population education, should be integrated in development planning and implementation.

Training modalities

Many educators in the region think that population education can only be as good as the teachers and key personnel responsible for its implementation. And since population education is a relatively new course, there is a need for massive in-service and pre-service training of school officials, particularly teachers. With such large numbers requiring training, many innovative alternative schemes have been evolved.

Training of teachers: formal education. There are at least six models for training teachers in population education that have evolved in countries in Asia and the Pacific. These are (a) phased face-to-face training conducted by the Ministry of Education; (b) phased face-to-face training by universities and teacher training colleges; (c) self-learning modules; (d) distance teaching; (e) inter-country or state visits; and (f) mobile training. These are briefly discussed below.

a) *Phased face-to-face training by the Ministry of Education.* This model has been used by those countries with a separate Population Education Unit (PEU) in the Ministry of Education.

In Bangladesh, teachers are being provided with face-to-face training. To implement the programme, 19 population education officers in 19 districts of the country organize training programmes using centrally developed training materials. The training is given by the district officers and those key personnel who received intensive training earlier.

About 250 educators drawn from administrators, supervisors and teacher trainers in institutions of higher learning were trained through 'key personnel' training programmes before the teacher training lecture programmes were launched. Among the materials used for training were a training manual, population education modules, mimeographed articles on various topics, charts, maps, and films.

The Philippines has adopted one modality in its effort to train 186,000 elementary school teachers (75 per cent of the total), 15,000 secondary teachers (20 per cent of the total) and 360 teacher-training instructors in the country. The core of the original training scheme of the Population Education Programme of the Philippines was a five-week training programme at the national level for subject area supervisors, coordinators and department heads of secondary schools in groups of 50. After their training they formed teams of two, called Supervisory Training Teams (STTs), and conducted a series of one-week training programmes for the elementary and secondary teachers in their respective school divisions. In view of the inability of the STTs to reach the desired number of teachers the scheme was altered in 1975 at which time STT-trained district supervisors, principals and department heads stepped in as middle-level trainers. They conducted 40-hour school level training programmes for their respective teachers.

Sri Lanka has its own unique modality for training. It conducted seminars for regional directors of education, and for other administrative and supervisory staff. The most important phase was the training of master teachers in the field of science, mathematics, social studies and languages. The master teachers then continued to train the subject teachers at the circuit level through their regular study circles which are organized under in-service programmes of the Ministry of Education. Among the materials used for the training of master teachers, and eventually the teachers in about 7,000 schools, were the course guides and the *National source book on population education.*

In Thailand, the Population Education Unit (PEU) of the Ministry of Education plans to train lower secondary and vocational teachers in population education. It is planned to train one representative from each school on how to use the new materials and how to integrate population education into the new social studies curriculum. These teachers will then have responsibility for training the other teachers in their schools who are to be involved in teaching population education. About 2,500 teachers will be trained at the 12 educational regions with the teacher training institutes acting as the co-operating institutions and providing the venue. The training will be conducted by supervisors who were earlier trained by PEU and Mahidol University.

b) *Phased face-to-face training by universities and teacher training colleges.* Teacher training in population education conducted by the Ministry of Education is mainly in-service while that conducted by the universities and teacher training colleges is both in-service and pre-service. Some teacher training colleges are, however, directly under the Ministry of Education. A case in point is the Population Education Programme at the Bangladesh Education Extension and Research Institute situated at the Dacca Teachers' Training College in Bangladesh. This programme conducted in-service teacher education for secondary school teachers. In Bangladesh, population education has been introduced into one of the existing courses of primary teacher training institutes and teacher training colleges.

In China, ten pedagogical institutes from different parts of the country are now providing in-service training programmes in population education especially for middle school (secondary school) teachers. Training materials have been developed which are based on the revised middle school curriculum and the revised instructional materials in population education. A source book, *Population education,* has been supplied to the teachers. During the in-service training programme teachers develop their own guides and prototype lesson plans in population education suited to their own subjects and the socio-cultural conditions of their communities.

The pedagogical institutes involved in the project are strategically located in different parts of the country. They serve as the training centres for middle school teachers in population education in their respective provinces and municipalities. The institutes serve not only those teachers who will implement population education during the life span of this project, but all middle school teachers who will eventually teach population education in the future. It is expected that these institutes will help develop positive attitudes towards population education, thus enabling the Ministry of Education to help realize its goal of reducing the growth of population from 12 per thousand to 5 per thousand by 1985.

In India, some universities and teacher training institutions have been involved in the training of teachers in population education.

In Indonesia, there are two main focal points in pre-service and in-service teacher training. The pre-service population education activities are integrated with the teacher education curricula at the primary and secondary teacher training institutes. As part of the in-service programme Indonesia has trained a core of master teachers in population education drawn from two levels—administrators, instructors and teachers. These master teachers work side by side with other key personnel involved in the massive programme of upgrading all teachers for the new curriculum being introduced in various school subjects. Teaching kits, consisting of audio-visual materials are being developed for use in training people from the out-of-school sector.

The population education programme in the Republic of Korea also includes a systematic implementation of in-service training of teachers and administrators. It began with the preparation of faculty members of teacher training institutions in the provinces, through seminars and intensive training for six weeks. In addition, orientation programmes for school principals and supervisors were also organized. The programme provides an in-service training programme for teachers of different subject areas in secondary schools. Based on these experiences, work on the development of pre-service programmes started in 1978.

The Republic of Korea's Demonstrative College Programme is a unique approach to pre-service preparation in population education. The programme was designed to help four universities develop and try out population education programmes for college students. At Seoul National University, population education content was infused in anthropology, Korean history, social work, home economics, sociology, demography, geography, ecology, genetics and biology. In Yonsei University, population education content was infused in the course, 'School and community' at the School of Education. This is a required course for the pre-service teacher training programme. At Korea University an inter-department course 'Population growth and the future' is offered as a three-unit general education course. At Ewha Women's University, a three-unit elective course, 'Population and the future' was started in 1975.

In the Philippines, a three-unit course in population education is either a required or an elective subject in the various teacher training institutions. In addition, population education content is found in most of the curricula in the School of Arts and Sciences generally included in a subject called 'Current issues and problems'. In Bicol University, a prospective teacher can major in population education and at the University of the Philippines one can pursue a Masters Degree in Population Education.

In Thailand, the Mahidol University Population Education Programme was assigned by the Ministry of Education to conduct a five-week training programme in population education for educational supervisors. These educational supervisors were, in turn, expected to organize similar training programmes for teachers in their geographical area of responsibility. The Department of Education, Faculty of Social Sciences and Humanities at Mahidol University also initiated a graduate training programme in population education leading to an M.A. degree in development education (population education) in 1975.

c) *Self-learning modules.* Population education is one of the innovations being introduced in the formal education system of Malaysia. In view of the time and cost involved in training about 100,000 teachers in population education through face-to-face group training, alternative strategies were developed. One such strategy is through Self-Learning Modules (SLEM). It is quite a unique approach in that it is a school-based educational programme. Instead of merely distributing the SLEM, and assuming teachers will read them, a 2-3 hour discussion is conducted dealing with each of the eight modules. The headmaster of the school acts as course manager and the teachers engage in a self-learning process. In addition, a management module for use by the headmaster has been developed.

In this way the headmasters assume the new role of professional leaders instead of mere school administrators.

In the Philippines, in-service training through self-instructional modules was resorted to in order to accelerate the training of teachers and as part of the Population Education Programme's effort to explore alternative schemes and innovations in training teachers in population education. The modules were for those teachers who could not participate in face-to-face training. Included in this category were teachers in isolated villages and island municipalities, those in private schools who could not leave their classes for a prolonged period of time, and newly-employed teachers.

d) *Distance teaching.* In Pakistan, Allama Iqbal Open University, *inter alia*, is charged with the responsibility of providing in-service training to primary school teachers mainly through correspondence. A one-week training course in population education is one of the main components of the course. The Primary Teachers' Orientation Course to which population education has been infused, is an 18-unit correspondence package that by 1979, had reached about 50,000 teachers out of the targeted 0.1 million primary school teachers. The ultimate objective of the study unit on population education is to sensitize the teachers to population problems and to equip them with the necessary knowledge and skills to make their students aware of the consequences of rapid population growth and develop positive behaviour during adulthood.

In Nepal, teachers are being trained in population education through the radio. They are to be provided in advance with appropriate workbooks containing exercises to be completed after every radio broadcast.

e) *Inter-country and inter-state study visits.* One of the training modalities adapted by countries of the region is to arrange study visits either to other countries or other states or provinces within a country where there are advanced programmes in population education. Afghanistan, Bangladesh, China, India, Indonesia, Malaysia, Nepal, Papua New Guinea, the Philippines, the Republic of Korea, the Socialist Republic of Viet Nam, the Solomon Islands, Thailand and Tonga have used this training modality at one time or another.

f) *Mobile training.* A Mobile Training Programme has been used in India, Indonesia and Sri Lanka. Mobile teams comprising trained and experienced teachers, administrators and supervisors conduct training programmes for teachers in their schools or in designated training centres in the area. The training occurs at times convenient to the teachers and organizers in a particular area.

Training of key personnel: non-formal education. The case studies on the development of out-of-school population education sub-contracted to nationals from Bangladesh, India, Indonesia, Pakistan, the Philippines, the Republic of Korea, Sri Lanka, and Thailand, did not show distinctive models for training key personnel in population education. They did, however, point to the need for trained personnel belonging to two broad categories, namely:

a) personnel to undertake curriculum and instructional materials development integrating population education with development programmes; and

b) personnel to deliver programmes at the grassroots level.

By and large, many of the training modalities used in the formal school systems are also used in the non-formal sector.

Innovative approaches to training. There are, of course, some innovative approaches to training tried out by Member States in the region, that are unique to out-of-school population education. A few of the approaches are briefly discussed here:

a) *Population education in functional literacy.* The literacy rate in Afghanistan is 23.5 per cent so the literacy programme is one of the main concerns of the government. It is for this reason that the General Agency for Literacy Campaign was created in the Ministry of Education. Equally pressing, are population-related problems. Hence, population education is being integrated with the six literacy programmes of the Ministry of Education. A field operational seminar approach is being used to train key personnel from different government agencies in this process.

In India, the National Directorate of Adult Education and the Literacy House in Lucknow have trained key personnel in integrating population education with functional literacy and adult education programmes. The Regional Team has been associated with many of the Training Workshops on Population Education in Adult Education Programmes which provided experience in the development of instructional materials.

In Indonesia, about 80 per cent of its 140 million population live in rural areas. About 26.5 million (26.9 per cent) aged 10 years and above are illiterate and live in ignorance and poverty. In 1977, about 27 per cent, or 8 million, of the children aged 7–12 years, had no formal education. Besides this, about 10 million or 60 per cent of primary school children drop out before completing their primary schooling. Here is a case of inequality of educational opportunity and access to man's basic human rights.

The Government of Indonesia, through the Directorate of Non-Formal Education, Youth and Sports, has launched innovative programmes to remedy the situation. One such programme involves the *Sanggar Kegiatan Belajar,* or learning centres, designed to foster a learning society. To provide equality of educational opportunity and access, two objectives were set. These were (i) develop several packages of learning materials to meet the basic learning needs of out-of-school children, youth and other interested learners; and (ii) assist in the formation of learning groups and learning centres to facilitate non-formal learning. Three main sets of learning packages have been developed, namely: (i) Package A for illiterates, new literates and primary school drop-outs; (ii) Package B for those who complete Package A and for drop-outs from junior high schools; and (iii) Package C for drop-outs from senior high schools and those who complete Package B or its equivalent. Population education has been incorporated in these packages because it is better appreciated and its message better recognized when interwoven into development programmes such as literacy and adult education, rather than if taught in isolation. A two-week national training course for key personnel in 26 provinces focusing on reinforcement of co-ordination, supervision, evaluation and recording and reporting, has been supplemented with a one-week training course on population education.

In Thailand, the bulk of the out-of-school population education activities are assumed by the Division of Non-Formal Education, Ministry of Education. A unique training modality has been adopted by the Division, in which learners are not given a textbook, but a card is issued each session, and these cards are accumulated to form a kind of text. Of particular interest is the concrete and functional approach to this programme. Topics which are raised on the cards include methods of rice farming, use of fertilizers and pesticides, identification of a good seed, basic health and maternity information, and simple investment and marketing facts. These topics are integrated with some family planning and population information. The Ministry of Education has a massive programme to integrate population education with all of its adult education programmes, with the active collaboration of various ministries, universities and research institutes.

b) *Population education in development programmes.* Many countries in the region have recognized that population education acquires more relevance when interwoven into areas that pre-occupy or interest the learner or when it is viewed as a solution, if not the remedy, to actual day-to-day problems. It is for this reason that population education is being integrated with various non-formal education programmes such as adult education and literacy, home economics and nutrition, skills development, agricultural extension, social welfare drives, environmental education, urban renewal, manpower development, rural transformation and development, community development and so on. Invariably, the personnel in these programme areas do not have adequate training in curriculum instructional materials development and thus face difficulties in integrating population education concepts with their disciplines as well as relating such concepts to the day-to-day problems of the individual, the family and the community. Many training programmes for trainers in population education are, therefore, focused on the strategy for integrating population education content with various development programmes.

In Bangladesh, the Social Welfare Department and the Bangladesh Family Planning Association have conducted training programmes for youth leaders on the integration of population education with income generating projects. Similarly, the Agricultural Extension Institute of the Ministry of Agriculture and the Ministry of Rural Development have trained development workers in integrating population education with their programmes.

In India, some universities have instituted training programmes in out-of-school population education. For example, Tirupati University in Andhra Pradesh and Madras University have special programmes for training personnel and field extension programmes following a unique approach called population clubs. The United Board for Workers' Education in India has developed a handbook for population education used in the training of three levels of workers namely: (i) education officers and worker educators; (ii) middle level trade union leaders and teacher-instructors; and (iii) local trade union representatives and active workers.

In the Republic of Korea, a teacher from each of the 800 primary schools in remote villages in the country was trained in population education using the materials developed by the Korean Institute for Research in the Behavioural Sciences. These teachers are charged with the responsibility of introducing population education to parents and the out-of-school population in remote villages.

In Malaysia, the staff of the Federal Land Development Authority have been trained in population education, so that they may create awareness and interest among the settlers in improving their quality of life. The Ministry of Agriculture runs seven Institutes of Agriculture, which train youths, who have completed grade IX education, as agricultural technicians. Population education is one of their required courses.

In the Philippines, there is the Integrated Human Resources Development Programme for Youth, which is part of the Ministry of Social Services and Development. Youths who have left the formal school are afforded training in self-reliance in terms of economic productivity and social responsibility. Built into the manpower skills development scheme is the Population Awareness and Sex Education programme where the non-formal methods and techniques, derived from social work practices are used in their training.

c) *Field operational seminar.* This is one form of participatory methodology used by many countries in their training programmes. The main thrust of this training modality consists of participatory activities in a rural community where participants help the target audience identify problems and needs in the context of their socio-cultural and geographic settings. The population-related problems obstructing development efforts are identified through observation, questionnaires and interviews. The priority population-related problems become the foci of the development of curricular materials integrating population education content with various development programmes.

The curriculum and instructional materials developed are tried out, revised and printed as prototype materials for use in the different out-of-school educational programmes of the country.

Summary statement. A variety of training modalities has been tried in countries of the region. No one modality is superior in all respects. Most countries try alternative training modalities depending upon available resources.

Research and evaluation

Perhaps, the weakest link in population education is that of research and evaluation. This seems paradoxical if one takes note of the recommendations of regional seminars and meetings, when it is obvious that Member States recognize its importance and need. However, in the face of limited resources, Member States tend to perceive research and evaluation as being lower in priority than the training of teachers and key personnel and curriculum and instructional materials development. Nevertheless there has been some research and evaluation carried out in the countries of the region and some of the more interesting will be described.

Baseline research. The main objectives of this type of research are: (a) to ascertain what population content already exists in curricular materials and textbooks, the findings of which become a guide to what new or additional population content should be added; and (b) to better understand the targets of population education—the nation's youth, and its agents, the teachers and field workers. Among such researches are content analysis of textbooks and knowledge, attitude and practice (KAP) studies.

a) *Content analysis.* In the Philippines, it was found that the population content of the nation's textbooks was only about 2.1 per cent. In Thailand, the population content of textbooks from *Prathom I* (grade I) to *Mathayomsuksa 5* (grade XII) amounted to 0.19 per cent. One of the earliest studies in population education in India consists of the analyses of the syllabi of various subjects to find out the existing population content in different school subjects. The findings of these studies became one of the bases for a draft syllabus in population education for the 11-years school stage. In the Republic of Korea, content analysis is a continuing activity. In 1980 a content analysis of textbooks showed that population content at middle school level rose from 11 per cent of all topics in the old textbooks to 13.4 per cent of all topics in the new ones. At high school level there was a greater increase in population education topics; from 12 per cent in the old texts to 16.16 per cent in the new.

b) *KAP studies.* Population education is invariably designed to change attitudes and values regarding population issues and to influence fertility related behaviour. One cannot, however, change population-related attitudes and values without knowing what these are. Hence, the Knowledge and Attitude (KA) and/or KAP Studies done in many countries of the region.

Bangladesh conducted a KAP study involving teachers which revealed, among other things, that primary school teachers, who have the least knowledge about population concerns, have larger families than college instructors who have more knowledge about population growth and its implications. The priority target of the training programme, therefore, in Bangladesh is the primary school teachers.

It was reported that in India, 21 KAP studies were done from 1970 to 1979.

> In most of the studies, it has been found that the students, teachers and parents are aware of the population problem. Both parents and teachers favoured the introduction of sex education. It is interesting to note that some of the illiterate parents wanted their children to learn not only about population education but about sex education as well. Many of the teachers were not aware of the concept of population education. When the concepts were made clear they favoured the introduction of population education in the school curricula. However, many teachers had reservations in expressing their opinion because of additional workload involved with the introduction of population education.[3]

In the Philippines, there have been many KA studies involving parents, teachers and students. One interesting study carried out by the Population Education Programme tried to ascertain the reactions of parents, teachers and students to controversial content, such as sexual terminology and illustrations of the reproductive system. Surprisingly, 90 per cent of the respondents endorsed inclusion of such topics in the population education curriculum.

In India, six studies have been done to find out the knowledge, attitude and perception of parents, teachers and students to the introduction of sex education in schools. The students, in general, favoured the introduction of sex education in the curriculum. A majority of the teachers favoured the introduction of sex education but wanted it to be introduced either in the lower classes or at the university level. The teachers felt that it could not be effectively taught by them, and that it should be taught by a doctor or someone else with specialized skills and knowledge.

In the Republic of Korea, the KAP studies were done by renowned research institutions, such as the Korean Institute for Research in the Behavioural Sciences. In a study involving secondary school students it was found that preference for a nuclear family and ideas of optimum family size crystallized in the higher grades of primary school. Overall, the desired sex composition was 2 : 1 in favour of male offspring. Hence, in the Republic of Korea, many programmes were designed around the value, son preference, which has invariably led to a bigger family size when the first few offspring are females.

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[3] Rao, D. Gopal. *A decade of population education research in India.* New Delhi, National Council of Education Research and Training, 1980, p. 12.

A KA study was also done in Indonesia involving teachers and students. Among the main findings were that: (i) students whose parents are from the armed forces and civil service tend to have better knowledge about population issues than students from other backgrounds; (ii) married teachers have better attitudes than the unmarried.

The findings of KAP studies by the Mahidol University Population Education Programme in Thailand involving parents, teachers and students became one of the bases for the development of curricula materials and training schemes in population education.

c) *Fertility related values.* In the Philippines, two anthropological studies known as (i) 'How children develop the concept of family size'; and (ii) 'Population learning among Filipino youth', investigated the practices, beliefs and attitudes relating to birth, adolescence, courtship, marriage and death among samples of 12 and 17 year-olds from 24 communities in different ethno-linguistic groups. The second study provided materials for a publication entitled, *Some Philippine beliefs and practices related to fertility,* which became one of the sources of content for curricular materials at the local level.

Studies related to curriculum and materials. Wide-ranging studies, from the very simple to the most sophisticated have been carried out by countries of the region with ongoing population education programmes. These have included the identification of population concepts that could be integrated with different subjects at different grade levels—and the pretesting of such materials, as well as the identification of socio-cultural values related to fertility-related values. At least ten curriculum and materials related studies are known to have been done in India.

Studies on the teaching/learning process. In Indonesia, studies made on the comparative effectiveness of the separate subject (monolithic) approach versus the integration approach to teaching population education revealed that the separate subject approach is more effective in terms of knowledge gain and attitude change. The study, therefore, recommended that serious consideration be given to the more extensive use of the monolithic approach in Indonesia.

In India, at least five studies have been done so far, related to teaching methodology. These include studies on the effectiveness of the holistic versus the integrated approach; formal versus non-formal approaches; curricular versus non-curricular; and alternative techniques of teaching population education. It is interesting to note that in one such study, it was found that the integrated method is a more effective approach in teaching population education.

In the Philippines, a series of studies has been done on the comparative effectiveness of discovery-oriented versus expository-oriented methods in terms of retention of population knowledge, development of thinking skills, and favourable attitudes relative to population issues and fertility related values. It has been consistently shown that inquiry oriented methods, including values clarification, are more effective. It was precisely because of this that teachers' guides used inquiry and values clarification methods.

Other evaluative research. A variety of evaluative research in population education, has been done in many countries of the region. These include: (a) evaluating curriculum materials; (b) comparing the relative effectiveness of alternative methods of teaching; (c) assessing learning outcomes; and (d) evaluating the effectiveness of training programmes. The first two have already been dealt with.

Evaluation of learning outcomes of population education lessons is also being done in most countries of the region. One serious set-back in most of these countries is that population education is not an examination subject, hence tends to be neglected by students who are preoccupied with examination subjects–the bases of whether or not they go to the next stage of education, such as university. However, in many countries studied, the impact of population education on various target audiences–teachers, students, and out-of-school youth and adults is increasingly gaining attention. Longitudinal studies have been built into many programmes such as those in Bangladesh and Nepal.

In most countries too, with massive in-service teacher training, pre- and post-tests are used that cover knowledge gained, attitude change and even behavioural intent relevant to population issues and fertility-related values and behaviour. In most such studies, statistically significant knowledge gain and attitude changes have been found.

Research utilization. It is evident that much of the research and evaluative studies in population education has formed the basis for programme and curriculum development, improvement of existing population education curricula and materials, the use of better methods of teaching, making training programmes more effective and assessing the impact of the programme on target audiences–students, teachers, out-of-school youth and adults.

In the Philippines, a series of seminars paved the way for better utilization of research findings in population education by teachers, curriculum and textbook writers, teacher educators and field workers.

Summary. Many country programmes in population education did basic research, especially on population related values; applied research, especially concerning the appropriateness of population topics at certain grade levels and natural integration into relevant subjects; methodological research, such as the relative effectiveness of alternative teaching methodologies and curricular approaches; evaluative studies of training or curricular materials; and impact of population education on students and out-of-school youth and adults. Diagnostic effort and impact evaluation have been started but much has yet to be done in many countries.

Documentation

Mobile library. In view of the dearth of population education materials in Bangladesh, particularly at the district and *thana* (village) levels, it was decided to establish a mobile library. The details of this notable innovation are discussed at length in the Bangladesh country paper.

Translation. Aware of the need to facilitate the sharing of experiences in population education many countries strive to produce English versions or at least English abstracts of their materials which were initially published in the national language.

Conclusion

If this synthesis has failed to account for all the innovative experiences in all the countries with population education programmes it is partly due to the fact that the authors of many country reports were quite conservative in their presentation of different aspects of population education. Subsequent population education publications will highlight the many innovative experiences in the region as they are brought to the attention of the Population Education Service.

SECTION THREE

POPULATION: QUALITY OF LIFE THEMES

UNICEF photo by Ane Haaland

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

POPULATION, AGRICULTURE AND FOOD

Population growth

The world had a total population of about 500 million by the year 1650, but with the advent of regular farming and the Industrial Revolution the population growth-rate accelerated. As a result, the population doubled in 200 years. This trend continued and the population doubled once more, totalling 2,000 million in 1930. The advancement in science and technology, especially in the medical field, further reduced the doubling period resulting in a world population of 4,000 million by 1975. In this way, within 125 years (from 1850 to 1975) the number of people on the globe increased four-fold. Although there are signs of a decline in the fertility rate, the world is still experiencing an overall average increase of 80 million people every year. The total population of the world in 1981 was estimated to be about 4,492 million. If the present trend continues, the net annual increment will be 90 million by the year 2000 and the total population of this world will be about 6,500 million out of which 60 per cent will be living in Asia.

Population growth in Asia was initially very slow due to high mortality rates and in 1920 the total population of Asia was less than a billion. Developments in the fields of agriculture and medicine started having an impact during the period 1920 to 1950 when the growth-rate rose to a little more than one per cent a year and the total population of Asia reached 1,300 million. In the 1950s and 1960s the growth-rate rose very sharply to an average of more than 2 per cent a year and the total population of Asia became about 2,000 million. A decline in fertility has been observed recently in many countries in Asia. The rate of growth in 1981 slowed to 1.8 per cent with a total population standing at 2,608 million. This trend is likely to continue at almost the same rate for some time longer.

Present trends in food production

The data published by the United Nations Statistical Office and the Food and Agriculture Organization of the United Nations (FAO) indicates that food production in the world grew at an average annual rate of 2.5 per cent during the period 1961-1965 to 1980 whereas during the same period the population growth-rate was 1.9 per cent per annum, declining further to 1.8 toward the late 1970s. However, the food production growth trend has been very uneven. Production grew at nearly 2.8 per cent per annum during 1971-1975 as against the rate of growth of 2.3 per cent in 1965-1970, and 2.1 per cent during 1976-1980. Even though the production of food has so far kept pace with population growth, the trend has not been so favourable as to justify complacency. Consequently, decision-makers need to take steps to ensure the production and supply of sufficient food in the world to save human beings from sudden famine and starvation.

The situation in Asia has been more or less similar to the global trend. During 1962-1972 the rate of population growth rose to 2.5 per cent whereas the annual increase in food production dropped from 3.1 to 2.7 per cent. Throughout the remainder of the 1970s, food production barely managed to keep pace with the population growth.

A closer analysis shows that in about the mid 1960s food production fell behind population growth, and that near famine situations developed in certain drought-affected areas of India, Indonesia and Pakistan. These countries had to import food to meet the situation at the cost of their economic development programmes. The situation improved when these countries reaped good harvests in 1967–1968, but once more in 1972 the world was threatened with a sudden fall in food production. Food production in Asia again slumped in 1979 and 1980 and the region's bill for food imports reached a record US $36.3 billion. The outlook for the future is even more problematic because of Asia's enormous population-base. The rate of food production must be increased in order to preclude the recurrence of food shortages and to ensure satisfactory conditions for the fulfilment of the goals of economic development programmes.

According to the United Nations projections, the region's population will continue to grow at an average of 1.7 per cent per annum up to A.D. 2000 in spite of the declining trend in fertility. To cope with the population growth-rate and the changing pattern of food consumption even at the present level of nutrition, the Asian countries will have to increase food production annually at a 3 per cent compound rate. Needless to say, it is extremely difficult to project the future growth of food production as it depends on a number of factors such as climatic and weather conditions, technology, the farm tenure system, the quality, quantity and availability of inputs and services to farmers, price policies, and international markets. However, it appears that it will be necessary to double world food supplies between 1970 and the year 2000, in order to keep pace with the demand due to rapid population growth. In the case of developing countries, food supplies would need to be doubled by 1990 but the achievements in Asia during the 1970s indicate that neither has food output been speeded up enough, nor population growth slowed down enough. These two long-term negative factors in the food equation have put Asia in an increasingly precarious position. As a result, the developing countries in Asia have to import food from developed countries to meet accelerated demand. This importation of food grains not only requires payment in foreign exchange, which the developing countries need for their development programmes, but also adversely affects the independence of each country in global political matters.

The question thus arises as to what Asia should do to increase the food supply to feed its ever increasing population. This question has been answered by two schools of thought. One group feels that the advancement of science and technology in the field of agriculture will help increase food production to meet the demand. This assumption has so far proved valid, as the food production in the region has generally kept pace with the rapid growth in population.

The other school of thought holds pessimistic views and points to past crisis periods (such as the 1960s and 1972) within the region when food imports were necessary to meet food requirements. The existing barriers which prevent the modernization of agriculture or extension beyond its present limits in order to save the region from famine also contribute to their view. This group, therefore, considers the present rapid population growth as the biggest danger to the welfare of the region's people.

Both groups base their arguments on the situation that prevailed in the region in the last few decades. Food production has generally kept pace with population growth with substantial year-to-year fluctuations due mainly to the irregularity of weather conditions. As a result, in a number of individual years, the increase in food production has been less than population growth even at the world level. Because of widespread bad weather, food production fell behind population growth in 1965 and 1966. This was followed in 1967–1970 by an encouraging spurt in production, not only because of better weather but also because of the introduction of high yielding varieties of cereals and the associated 'green revolution' technology. However, food production, distribution and supply within the region has not achieved the level of efficiency necessary to overcome the problem of undernourishment and malnourishment of a sizeable population, or coped with the adverse climatic situations in certain years such as 1972. Therefore, during bad-weather years certain countries in the region are forced to import food-stuff to meet the food needs of their population by spending the foreign exchange needed for other development projects. This situation has compelled many nations within the region to re-design their policies and assign top priority to agricultural development with the aim of becoming self-sufficient in food production and supply. What really matters of course is that governments and international agencies remain committed in their attempts to achieve food self-sufficiency in the face of a likely doubled Asian population in the next 20 years. An analysis of the factors of production with special reference to developments in science and technology can provide a partial solution to these problems.

Increasing food production

An increase in production basically means increasing the inputs of different factors of production such as land and water, labour, materials and various types of capital and technological know how. The application of these factors in the developing countries, with a majority of small farmers, largely depends on the infrastructure and services provided by the governments. The following two approaches, however, are generally made in an attempt to achieve the objective of increasing food production:

1. Horizontal expansion approach;
2. Vertical expansion approach.

Horizontal expansion approach. This approach is used to bring new land under cultivation so as to produce more food for the rapidly growing population in the world. When land becomes scarce, the people often go hungry, and when soils are depleted the crops are poorly nourished resulting in the undernourishment of the people. Responding to the food requirements of the growing population, farmers over the years have devised ingenious techniques such as irrigation, terracing and fallowing for extending agriculture into new lands. According to an FAO projection the total land surface of the world is around 13,100 million hectares, of which about 12 per cent (some 1,500 million hectares) is presently cultivated without any serious limitations, with a further 3,000 million hectares of permanent meadow and pasture. About 28 per cent of this includes deserts too arid to cultivate, 23 per cent poor in nutrients, 22 per cent too shallow, 10 per cent too soggy and 6 per cent under permanent ice or snow. FAO studies have further shown that an additional 200 million hectares of arable land can be brought under cultivation through the application of land development and soil conservation techniques, but with an overall investment of about US $74,000 million needed between now and the end of the century, this seems extremely difficult, if not impossible, especially for the developing countries. At present, most of the good agricultural land is already under the plough and thus the potential for expanding the world's crop-land provides little room for optimism.

Asia is no exception to this general global situation. Burma, Indonesia, Malaysia and Thailand were in the forefront in the region by following this horizontal expansion approach in the past but currently the *per capita* availability of land for raising food or animal feed is very small and is actually decreasing daily due to the high population growth rate.

According to one estimate it was found that in the far east of Asia where 50 per cent of the world's population is living, less than a fifth of a hectare of arable land and 1.1 hectare of land surface is available per head. Similarly the pastures and woodlands are equally small and have little scope for expansion. At the same time, the areas under pastures and forests are shrinking as a result of the expansion of crop-lands. Already in south Asia some 50 per cent of the land surface is utilized for crops, and there is some possibility of stretching crop-land used in India if the full irrigation potential of the Gangetic plain is developed. In addition, more land can be brought under cultivation in the Mekong Valley and Delta once the political situation permits. In general, it can be said that there is a very limited amount of land still available to be brought under cultivation in Asia. Moreover, in view of the scarce resources available for development programmes in the developing countries in Asia, bringing new land under cultivation does not seem to be an economically viable proposition. Land development costs are extremely high and require huge capital investment. Newly developed land is marginal in fertility and difficult to keep in use due to water-logging and salinity while wind and water erosion increase the possibilities of flooding.

On the other hand the amount of agricultural land in Asia for food production is shrinking rather than expanding due to rapid urbanization demanding the use of productive land for housing, road and rail-road networks, energy production, industrial plants, airfields and military uses. More and more crop-land is also being abandoned each year as it reverts to desert (Afghanistan, Iran, North Western India and Paksitan), or because of severe erosion, water-logging and salination of irrigated land (India and Pakistan). FAO estimates that salinity and water-logging alone have damaged half of all irrigated farmland. In Pakistan, about 11 million of the 15 million hectares of irrigated land suffer from salinity, water-logging or both. FAO studies further estimate that 82 per cent of Asia's rural population will feel the pressure of severe land shortages by the year 2000.

Vertical expansion approach. An in-depth analysis has been made of the potential of the horizontal approach to increase food supply and the demand created primarily by rapid population growth in developing countries and lavish food habits of the inhabitants of developed countries. It indicates that this approach is unlikely to be able to meet the challenge for a sufficiently long period because, in many countries in the region, the supply of new land has almost been exhausted. Moreover, bringing new land under cultivation is not possible without heavy investment and an adverse affect on other uses of land, besides increasing dangers of floods and soil erosion. Therefore, the only alternative is to increase the per unit productivity of land through the adoption of scientific methods of farming. These include the use of high-yielding crop varieties, the application of fertilizers, the use of insecticides and pesticides, weeding, farm mechanization, provision of irrigation, double cropping, mixed cropping and the provision of widespread extension education and training facilities. Improved credit facilities for farmers should also be provided. This approach, which advocates more intensive use of already cultivated land for increasing per unit productivity, is known as the *vertical expansion approach.* An intensive application of all agricultural inputs is a prerequisite for its success. Some of these inputs are briefly discussed below with special reference to the degree of contribution which they can make in increasing food production, distribution and supply.

Improved varieties of food crops

Because the world population up to the beginning of this century was not very large, more cultivable land *per capita* was available for food production to meet food requirements. The higher population growth-rate in the 20th century upset the equilibrium and persuaded agronomists and their colleagues in the related disciplines to undertake agricultural research in order to evolve improved varieties of food crops. It was the result of their patient research work which, during the 1960s evolved semi-dwarf, fertilizer responsive, high-yielding varieties of wheat, rice and maize that were later on adapted to meet a wider range of ecological conditions and cultivated in a number of countries in Asia as one of the inputs of the package of the 'green revolution'.

The International Rice Research Institute, University of the Philippines, Los Banos, Philippines, played a significant role in evolving high yielding rice varieties and is still conducting further research to improve the existing varieties. Its counterpart, the International Agricultural Research Institute in Mexico evolved high yielding wheat and corn varieties. Some agricultural researchers believe that inherent biological constraints will eventually restrict the crop yield per hectare. One analyst states that existing techniques and the rate of development of agricultural research will be sufficient to sustain the expansion of agricultural production until 1985. After that, because of the projected population growth-rate, more fundamental innovations will be needed to save the world from hunger and starvation. Norman Borlaug, who evolved a high-yielding wheat variety, also reaches a somewhat similar conclusion when he says that for wheat, corn, rice, sorghum and soyabeans, the agronomists have reached a maximum genetic yield barrier that will be difficult to break through. Future increases in genetic yield potential will be smaller and smaller increments and they will be more and more difficult to achieve. Another group of agricultural researchers feels that more innovations in food crops are likely to take place. These innovations may include new 'genetic engineering' and propagation techniques, widespread use of single-cell protein as animal feed, improvement of photo-synthetic efficiency of plants and basic aspects of radiation technology. According to one estimate, today's known technology is probably less than one-tenth of that which will be available in the year 2000.

Fertilizer

One of the most important agricultural inputs to increase per hectare food production and sustain the momentum of the green revolution is the adequate availability of fertilizer. The developed countries in the world were the first to benefit from the application of fertilizer. They built fertilizer production plants and thus ensured continued supply to their farmers. The amount of fertilizer produced in excess of their demand was exported to developing countries. The world consumption of fertilizer increased at an annual rate of about 5.5 per cent during the 1970s but the consumption share of the least developed countries remained very small with only 0.6 per cent of the total nutrients consumed, while their share of the world area of arable land and permanent crops at 6 per cent was ten times greater. The lower consumption of fertilizer in the developing countries is mainly

caused by lack of adequate and timely supply. Recognizing the role of fertilizers in increasing per hectare yield, the developing countries are rapidly expanding the local production of fertilizers but still lag behind consumption and thus heavily depend upon imports.

In fact, the present breakthrough in cereal production in Asia is the result of the application of fertilizer which has proved to be a substitute for newly cultivated land when applied to high yielding varieties of cereals. These varieties were evolved to act as efficient converters of fertilizer into edible products while indigenous varieties were selected for the ability to produce dependable yields on soils of low fertility. For example, during the last two decades dramatically high yields of rice and wheat have been obtained by farmers in India, Pakistan, the Philippines, Thailand and Turkey with the use of chemical fertilizer. The application of fertilizer to the new high yielding varieties of cereals seems to be a highly desirable step to increase food production. However, many of the developing countries in Asia are unable to produce the fertilizer locally to meet their needs and must import it at high prices from the developed countries. The problem of fertilizer imports coupled with high prices has reduced the prospects of increasing food production at a sufficiently fast rate in many developing countries. Consequently the countries in the region have planned to expand their local production capacity on the one hand and enter into trade agreements with fertilizer exporting countries on the other to ensure the timely supply of fertilizers to meet immediate needs.

The well known law of diminishing return is found to be applicable in the case of consumption of fertilizer, and the developed countries have already been experiencing less return for each additional application to their crops. While there is still an enormous opportunity for increasing the per hectare yield of crops in some third world countries, including most parts of Asia, the outlook for future dramatic world-wide increases appears less hopeful now than at mid-century.

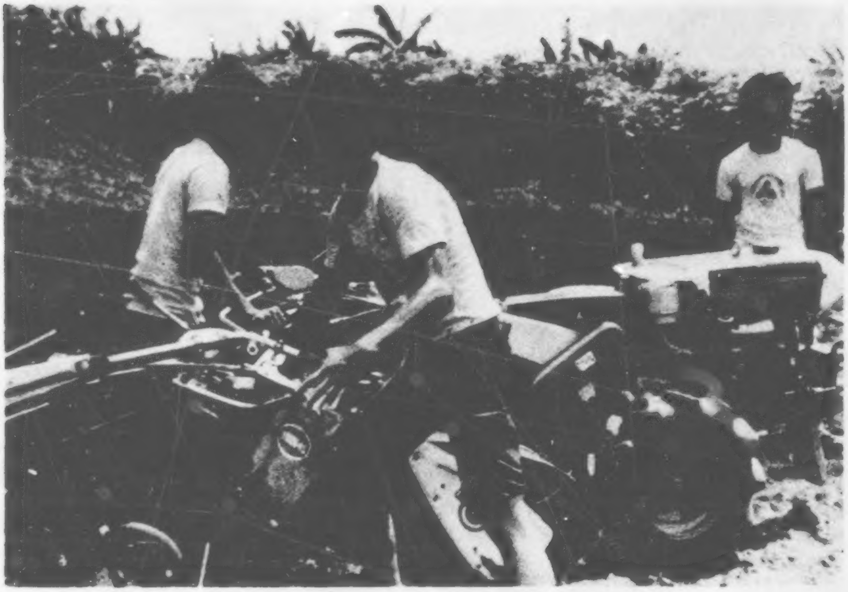
Water

The provision of irrigation water is another means of increasing agricultural production. In the Near East, land under irrigation produces four times as much food per hectare as the rest. According to one FAO estimate the crop area under irrigation in the world has increased from 157 million hectares in 1961–1965 to 207 million hectares in 1979, at an annual growth-rate of about 1.7 per cent. About 58 per cent of the total irrigated area lies in the developing market economies of the Far East and the Asian centrally planned economies. Apparently, intensive human efforts and huge financial inputs need to be mobilized to develop water resources and ensure the supply of the required quantity of irrigation water to meet the United Nations target of watering a further 22 million hectares by 1990. In addition, investment will be necessary to improve about half of the existing irrigation schemes in the world.

The situation in South Asia is not much different, and countries such as India and Pakistan, with large populations to feed, are forced to mobilize huge capital and human resources to construct dams with the objective of supplying irrigation water to the arid land in order to increase production. According to one estimate only 30 per cent of India's crop-land is irrigated, leaving most of the annual harvest still prey to the vagaries of the monsoon rains. Irrigated land, as a factor of agricultural production, appears to be of considerable importance to the majority of the countries in the region but more so in the case of Afghanistan and Bangladesh. The experiences in the region have shown that the meagre quantity of water that is available under different irrigation schemes is not being efficiently used because of lack of attention to land levelling, field distribution, drainage systems and regulatory services. Improved drainage can check and largely eliminate the degradation of irrigated land through salinity and water-logging and thus help increase the crop yield. Efforts would need to be made to allocate more funds for renovation and improvement of existing water schemes, harnessing rivers, and tapping new sources of water supplies such as ground water for irrigation. By mobilizing new water resources over a period the developing countries can increase the area under irrigation by up to 50 per cent which in turn can make a significant contribution to the efforts to increase the food supply in the region. This can only happen if the huge amount of funds needed for the purpose is made available through bilateral and/or multi-lateral agreements.

Mechanized farming

Many farmers in a number of developing countries in the region are still following indigenous agricultural practices such as using primitive farm tools for tilling the land. These tools served the purpose when the size of the population was small, requiring proportionately small quantities of food supplies to meet the needs. But with the high rate of population growth in the developing countries and the need to increase the food supply, the use of indigenous tools is out of date. It is necessary to replace existing agricultural practices by more advanced mechanized farming methods. One of the most commonly used aids in the context of mechanized farming is the tractor. FAO estimates that there were about 20.3 million agricultural tractors in the world in 1979. Out of this total, approximately 14 per cent were in the developing countries and only 0.2 per cent in the least developed countries. The situation with regard to the use of tractors in Asia is not much different from that obtaining in other devel-



oping countries in the world. Moreover, the efficient use of tractors in Asian countries again requires thorough planning with special reference to size, import, and manufacturing in view of the diversity of geo-physical conditions and types and size of farms in different countries and even within any particular country in Asia. Therefore, in addition to the large tractors, small and medium size tractors should also be produced or imported to meet the needs of big as well as small farms throughout the region. This seems to be essential also because the capital costs for purchase and maintenance of large tractors is often beyond the financial capacity of many agriculturalists. To encourage the use of this modern technological aid by small farmers it may be worthwhile considering the possibilities of subsidizing the purchase of tractors within a country.

Plant protection measures

One of the outcomes of agricultural research activities is the evolution of improved varieties. These high yielding varieties of cereals not only need large doses of fertilizer and sufficient water but also need to be protected against the attack of certain diseases, insect pests and weeds. Compared with the inputs of fertilizers and improved irrigation systems, the application of plant protection measures lags far behind. Moreover, the data on the world use of pesticides are not comprehensive because of their heterogeneous nature. The availability of pesticides and other plant protectants for these exotic varieties of cereals is more urgent than other inputs as some diseases and pests may destroy huge areas of crops, thereby leading to famine.

These insecticides, pesticides and herbicides are generally not produced in sufficient quantities in most of the developing countries, and will therefore have to be imported at extremely high prices and supplied to the farmers, if possible, at subsidized rates. This seems to be a necessary evil which the developing countries will have to live with until either the evolution of totally disease resistant varieties or the local production of the necessary pesticides. It would be desirable to plan in advance for the production and/or import of chemicals on the same pattern as fertilizers to meet the need in time. However, efforts should be made to use them with great discrimination to have the minimum possible effect on the economy of the country. For example, certain pests might be controlled by other means such as sterile male techniques and the eradication of weeds by hand, especially in those countries where farm labour is under-employed. Educational campaigns should also be launched to familiarize a large proportion of the farming population of the developing countries with plant protection measures to help reduce the widespread losses every year because of pests, diseases and weeds.

Supply of credit

The application of agricultural inputs such as high quality seed, fertilizer, plant protection materials, farm machinery, and irrigation water on a sufficient scale is precluded in developing countries in Asia because of the lack of purchasing power among farmers. The FAO estimates that in South Asia the average small farmer invests only US $6.00 per hectare per year in his farm when he should be spending US $20 to US $80 according to the crops being grown. If the developing countries want the farmers to apply modern agricultural technology to increase the per hectare yield, they must make arrangements to supply credit, especially to the small farmers who are very hard pressed financially. The provision of such credit facilities should take the form of institutional credit, delivered and supervised through farmers' own organizations and not through the private commercial money-lenders who charge very high rates of interest. It has also been observed that the developing countries do not have sufficient finances for such purposes and need to be helped to launch agricultural credit schemes. In view of this difficulty the World Bank and other bodies have initiated programmes to support the credit institutions in developing countries. Such activities need to be greatly expanded in view of the dire necessity to increase the use of all agricultural inputs to meet the food shortages within a limited period of time by increasing the per hectare yield of food crops.

Storage

Food supply can also be increased to a certain degree by minimizing crop losses. These losses occur due to poor management in harvesting; insect, rodent, and fungus damage in storage; poor quality sacks and other containers; inexpert handling in transport; inefficient or poorly maintained milling equipment; and faulty distribution of mill products. Such losses account for 20 to 40 per cent of the total production depending upon the crop and the country. In the case of perishable commodities such as fish, fruit and vegetables such losses reach 30 to 40 per cent. According to a recent estimate India loses 10 to 15 per cent of its food grain annually whereas Indonesia and Pakistan suffer from an 8 to 10 per cent annual loss due to inadequate storage facilities. These losses are multi-faceted and need to be tackled by initiating improvements from several directions. An investment in modern storage bins and silos, both in villages and in larger centres, better packaging materials and transport facilities, modification of milling practices for cereals and oil seeds, and better marketing techniques for both whole-sale and retail distribution will prove to be positive steps towards reducing such losses and bridging the gap between the demand and supply of food-stuff.

Education and training

One of the important inputs, without which the potential targets are difficult to realize, is the education and training of farmers and extension agents. The move to increase production implies that the farmer would need to be a good manager of his land, labour and capital; he would need to study applied aspects of agronomy, entomology, pathology, breeding, engineering mechanics, weather, marketing, management, co-operatives and credit, public affairs, production forecasts, consumer demands, population dynamics and the government policies. The professional educator, in this case the extension agent, whose role is to advise the farmer on increasing farm productivity, must also study all these areas in depth to add to his training in psychology, leadership development, group dynamics and communication strategies in order to prove an effective change agent.

It has generally been observed that most of the developing countries in Asia have not given education and training the high priority it deserves. Wherever certain intermediate and higher training institutes have been established, their training approaches have been traditional and they have hampered the innovations needed in out-of-school education. Besides, the nature of the training provided in these institutions is found to be highly theoretical and has so far failed to produce the type of worker able to tackle practical problems on the farm. Thus the weakness in the training has discouraged the extension agent from conducting educational programmes for the farmers and widened the communication gap between the research workers and the farmers; resulting in a low rate of adoption of modern agricultural technology by the farmers. The communication gap can be bridged only if the developing countries assign high priority to the education and training component of their agricultural development plans, besides providing a practical orientation to the training curricula for extension agents and lay leaders.

Research

The accomplishments during the last four decades have proved that the success of modern agricultural technology is largely based on the continuous and intensified research efforts undertaken by specialists in all related fields of agriculture. The success of research on corn and wheat in Mexico in the 1940s and 1950s and on rice in the Philippines in the 1960s is the living example of achievements in boosting food production throughout the world. To strengthen these attempts and help accomplish the objectives sketched in the preceding paragraphs, there is the need for a large investment in research directed towards the evolution of new crop varieties and technology for dry and rain-fed fields that comprise 70 per cent of the farmland in South and South East Asia, more profitable exploitation of resources and more evenly splitting the benefits of high yields.

Other sources of food supply

There is a limit to how much we can increase the supply of food grains and other crops for human consumption due to limitations of agricultural inputs. Therefore we must ask ourselves if there are any alternative sources of food which Asia can exploit to reduce this demographic pressure on land resources. One possible answer to this question is the exploitation of water resources which can provide fish, sea weed and other plants grown in water for human consumption. Food originating from the sea is presently eaten in negligible quantities. However, the region has large water surfaces, is deficient in food supply in general and animal protein in particular. It would thus be pertinent to make the fullest use of these water resources to increase food supply. To begin with, it may be advisable to promote inland fisheries which require less capital and can supply the type of fish which is commonly eaten throughout the region. This will help meet animal protein deficiency even in the rural areas. But inland fishery development is limited by the amount of available water on the land surface. Therefore, long-term developmental plans may also be prepared with international assistance to exploit seas and oceans for sea farming. The programme may first be taken up at an experimental pilot project level, as sea farming is a new area and experience is needed before launching such a scheme on a massive scale.

The scientists through their continuous and intensive efforts have also discovered two new types of food for human consumption. They are categorized as: (a) semi-conventional foods; and (b) unconventional foods.

Semi-conventional foods are being derived from known sources which are otherwise unsuitable for direct human consumption. Bio-chemical engineering is the technique used to derive such foods. These foods are at present being produced on a commercial basis for human consumption.

Unconventional foods are produced from completely new sources and have been found principally by two methods, i.e. chemical synthesis, and mass culture of micro organisms. These are not yet being produced on a commercial basis.

The scope for the production of semi-conventional and unconventional foods for human consumption is very limited as these scientific discoveries have yet to be proved economically feasible propositions as alternative sources of food supply.

Conclusion

The foregoing analysis of the possibilities of increasing food production and supply indicates that it is potentially possible for the countries of Asia to considerably increase their food production over the short-term. This may allow them enough time to influence their population growth. However it will require huge capital investment and the mobilization of other physical and human resources to implement any agricultural development plans. In the past the developing countries in Asia have found it extremely hard to mobilize the required amount of capital for this purpose so it has not been possible to achieve a significant increase either in the *per capita* food production or in agricultural income during the last two decades. The rate of increase in food supplies lagged behind population growth and demand and the situation is still not very much improved. The long-term prospects of increasing food supply to meet the ever increasing demand due to the present population growth-rate do not seem to be very bright. However, a permanent solution to the food supply and population growth problem can be attained when the small-family norm becomes socially accepted by the peasants of Asia, and the available physical, financial, and human resources are mobilized to exploit agricultural technology in a well planned and controlled manner. To accomplish these objectives of small family norms and the desirable exploitation of agricultural technology requires not only material inputs but also sound educational programmes for all categories of people both in the fields of population education and agricultural development. In addition, an equal and parallel emphasis will need to be placed on changing social values and attitudes towards family size, education and employment of women and the style of food consumption. Such efforts in Asia are likely to succeed if the governments, business undertakings, public interest groups and individuals in the developed and developing world make collective efforts to mobilize both human and material resources.

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Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

POPULATION, NUTRITION AND HEALTH

The World Health Organization (WHO) defines 'health' as not only the absence of disease or infirmity, but a more positive state of complete physical, mental and social well-being. While each individual's life style and concept of 'quality of life' may differ, health would most certainly be of paramount importance in its achievement. Without it, an individual will not be able to function to the degree of satisfaction he seeks in living a full, productive and happy life. Health, of course, is influenced by many factors. One of the most important is nutrition. The roles of nutrition and health and their relationship to population are examined below.

Nutrition and health

Hunger is one of the most acute problems of the world. Millions of people simply do not get enough to eat. Where they have enough to eat, many people do not get enough of the right kinds of food and they are malnourished. Children, especially, are very vulnerable to the effects of malnutrition which is the biggest single contributor to child mortality in developing countries. Even if they do not appear to be very sick, children who are malnourished are not healthy. They may be underweight, sleepy and dull, performing poorly in school. Some may not even be recognized as malnourished, but when they become sick with measles, or a diarrhoeal disease, they are more likely to die than better nourished children. The malnourished child cannot fight disease so well, and therefore may suffer infections constantly.

In the more severe cases of malnutrition classified as 'protein-energy' or 'protein-calorie' malnutrition, children may develop nutritional deficiency diseases such as marasmus, caused by a severe lack of protein and calories, usually because they eat so little food, or kwashiorkor, where they eat food lacking in protein. The child with marasmus is starving. He is emaciated and may weigh only half as much as he should for his age. He is literally 'skin and bones'. His arms and legs are like sticks and his ribs are visible under his loose skin. His face is thin, like an old man's and his head looks too big for his body.

A child with kwashiorkor does not usually look thin. He may have fat under his skin while his body and cheeks are round. His legs, hands and stomach may also look fat, but they are swollen with water. Contrasted to this, his shoulders and upper arms are thin. His hair becomes thin and light. Some people may think that any child who looks fat must be well nourished, but a fat child with kwashiorkor is severely malnourished. In both marasmus and kwashiorkor, the common deficiency is protein –the body-building food. In marasmus, however, there is also a lack of energy food. In both, the child will stop growing. Kwashiorkor is often seen after a child stops breast-feeding. Estimates of protein-calorie malnutrition are staggering–indicating that as many as two-thirds of the children in developing countries encounter sickness or disabling diseases either brought on or aggravated by protein-calorie malnutrition.

There are other deficiency diseases caused by a lack of one or more nutrients–proteins, carbohydrates, fats,vitamins and minerals. Some are extremely important, especially because of the number of people, particularly children, who suffer from them in developing countries. Anaemia, caused by iron deficiency resulting in a lack of haemoglobin in the blood, is characterized by sickness and sluggishness. Pregnant and lactating women are especially vulnerable to nutritional anaemia and women frequently die in childbirth. It is sad to think that the fatigue brought on by nutritional anaemia is so common that in poorer societies the condition is often accepted as the norm. Endemic goitre caused by a deficiency of iodine in the diet is a major problem in certain areas. It is manifested as an enlargement of the thyroid gland. Children born of affected mothers may be born with mental or physical defects. Vitamin A deficiency affects millions of children in developing countries. The deficiency affects growth, skin condition, and vision. Xerophthalmia, caused by a severe Vitamin A deficiency, can lead to blindness and is very prevalent in developing countries. While all of these diseases affect large numbers of people in developing countries there are countless others who will not be classified as having a disease related to malnutrition, but who, nevertheless, cannot be termed healthy according to the World Health Organization's definition.

While the problems of malnutrition are recognized, all of the contributing factors are not so easily seen. Obviously, not having enough to eat is an important factor–witness the ravages of a famine. There may be many reasons for the insufficiency of food such as a poor harvest due to crop failure, harsh weather, pests, spoilage or a poor distribution system. Besides food shortages, there is the low purchasing power of poor families who lack the money to buy food. These physical and economic factors are most important. Hence, many programmes aimed at improving the nutrition and health of the people attempt to increase the availability of food or purchasing power of families.

Compounding these problems and in many cases underlying them is the basic fact that there are too many mouths to feed with the available food resources. Adding more water to the soup may be a solution for an unexpected guest for dinner, but will not add calories or protein to a family's daily diet. Diluting the food to increase the volume is no solution to malnutrition. There are other very important but less obvious factors in the relationship between nutrition and health–these are called socio-cultural factors.

Nutrition and culture

Even when there is more food available or when purchasing power increases, the result may not be an increase in the consumption of nutritious foods. It has been observed, for example, that when people have more money, they may buy products which are more expensive but not always of greater nutritional value–like carbonated drinks, or alcohol, and imported products less nutritional than their inexpensive local products. While this practice may enhance their social prestige, it does nothing for their nutrition.

Even with a greater availability of food or purchasing power, there may be certain established practices and beliefs, contrary to good nutrition, which may have nothing to do with economics. In some parts of the world, for example, solid foods are withheld from a child who has diarrhoea, when this is the time he needs it. In others, pregnant women avoid eating eggs for fear it will cause sterility, nor are they given to children because it is believed eggs cause blindness and deafness. Some reject powdered milk, even if available free of charge, because they believe it is prepared with bean flour or that it causes intestinal disorders. For many, it is unthinkable to eat dishes prepared with animal blood, high in nutritional value, because they feel it is fit only for animals. Every culture has its beliefs and practices regarding food. Examples of cultural taboos, which prevent the full utilization of available food resources to improve the nutrition of the people, are numerous. In short, it is not always the lack of food or purchasing power which contributes to malnutrition.

One of the greatest problems contributing to the malnutrition and ill health of children is the decline in the incidence of breast-feeding in recent decades. While infants in most parts of the developing world are still breast-fed, it is unfortunate that changes in the structure of societies, urbanization and the influence of more developed countries have caused this rapid decline. Nutritionally, the consequences are disastrous. Breast-milk, because it is not visible, may not be considered a resource by the people, and hence, its under-utilization may not be considered wastage. But its true value is priceless. The WHO states:

> Breast-milk is the perfect food for babies. It is nature's way of ensuring a sound healthy start to life, and it meets all the nutritional needs of the baby, safely and adequately. There is no better food.
>
> It is unique because it also provides the baby with defences that protect it against many of the illnesses in early infancy. Breast-fed babies are less likely to suffer from gastro-intestinal infections, respiratory infections, and other common diseases which are among the major causes of infant death.
>
> The close contact of baby and mother while breast-feeding provides the warm, secure environment needed for the health and well-being of the baby and for a happy relationship between mother and child.
>
> Aside from these health advantages, breast-milk also has other values. It requires no preparation and is always available at the right temperature. It avoids complicated sterilization of bottles, and saves the mother both time and money.[1]

Even when babies are breast-fed, they need other food to supplement mother's milk after four to six months. Human milk can serve as the basic source of nutritional well-being even from the sixth to the twelfth month, as it can supply up to three-quarters of a child's protein needs. For many, breast-feeding represents the only easily available source of high quality protein necessary for growth. Consequently, if the child is weaned too soon, before he is prepared to share the family diet, he is apt to develop severe malnutrition. In addition, because breast-milk contains active agents that provide immunological defence, the child will be unlikely to develop infections like diarrhoea diseases and measles until after weaning.

Nutrition and human development

The effect of nutrition on physical health, especially of children, is obvious; but the quality of the nutrition of individuals affects the development of human beings in many other ways that are sometimes overlooked. Malnutrition for example, adversely affects mental as well as physical development. It reduces productivity and life span, and hence, the working years. While heredity determines the potential size a person can attain, one of the major requirements for growth is adequate amounts of certain essential nutrients like protein. It has been seen that nutritional improvement in certain societies in recent years has increased the stature of the new generation significantly. However, if the essential nutrients are not available to the body in sufficient quantity, growth is retarded, and full potential is not reached. In many economically underdeveloped populations, therefore, physical growth is retarded. Strength, speed, co-ordination and other behavioural characteristics are affected by the nutritional status of an individual. So the nutritionally inadequate person expends less energy and compensates by working more slowly, falling far from his potential. Again using the WHO definition of health, he may not be 'sick', but he is not healthy.

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[1] *World health*, the magazine of the World Health Organization, February-March 1977, p. 16.

Malnutrition during the foetal period and in infancy is associated with intellectual impairment. Malnourished children do not do as well on mental tests as well-nourished children. They are less motivated, unresponsive and often have learning disabilities. There is some evidence to indicate that malnutrition adversely affects the mind and its development. Moreover, the damage caused by malnutrition may not be reversible, as evidence shows that previously malnourished children still perform less well on mental tests in later years. Unlike some other nutritionally-related conditions which improve when the deficiency is corrected, the invisible effects of malnutrition on the development of the brain could be the most damaging impact on an individual's life.

Unfortunately, the tragedy of malnutrition is often a vicious circle. As the Director-General of WHO observes, 'poor malnourished parents produce malnourished children who in turn will become poor and malnourished parents.'[2] Malnutrition exacts a heavy toll on the quality of life of individuals. Conversely, however, adequate nutrition dramatically enhances it. There is hope that through better nutrition the physical and mental development of human beings will be realized to their highest potential.

Population and nutrition

On the surface the relationship between population numbers and nutrition is easily seen. The larger the population, the more food is needed. And, also, by simple arithmetic, if the amount of food is fixed or the ability to purchase food is limited, then the increasing population reduces the per capita share of food for each individual. In most cases, this simple

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2. *World health*, the magazine of the World Health Organization, February–March 1979, p. 19

relationship can account for much of the malnutrition, misery and attendant health problems.

The problem of malnutrition itself is a complex one and balancing the number of people with the available food resources will not necessarily eliminate malnutrition. In the long run, only rational socio-economic development will correct it; development that will eliminate the basic causes of malnutrition–food availability, poverty, ignorance, and population numbers. As already pointed out, it is not only the quantity of food that is important, but also the right kind of food, especially protein. While meat, milk, eggs and fish are traditionally regarded as the primary sources of protein, these may be too expensive for much of the population. However, less expensive items such as livers and kidneys may be more affordable, and other locally grown food like pulses, cereals, vegetables, nuts and fruit could be utilized. Education in nutrition is required and erroneous, traditional food habits must be eliminated.

Breast-feeding is the fundamental source of nutrition for babies in most communities. How long it continues and the amount of time and care the mother can devote to the infant are important in the child's development. Unfortunately, an early conception may mean the discontinuance of breast-feeding, and an increase in the chances of infant malnutrition. Adequate spacing between pregnancies results in better nutrition. Another benefit of breast-feeding is its relationship to family planning or spacing. Studies show that the process of breast-feeding stimulates the production of hormones that tend to inhibit ovulation and menustruation. Therefore, the mother who is breast-feeding has a better natural contraceptive for up to 10–12 months, than one who doesn't. Breast-feeding is not only an important nutritional source for the infant, but also has a contraceptive value for the mother.

Population growth always affects social services such as education, health, and housing. How are these services affected by the nutrition of the population? As nutrition improves it is natural to assume that medical costs will be saved through a reduced demand for medical services. Also, students become more alert and learn more easily, increasing the efficiency of the educational system and reducing the number of dropouts and repeaters. Productivity should also increase as workers are more vigorous and alert, so better nutrition is really an investment in people.

Many elements of the quality of life of individuals are measured by the degree of satisfaction one has in enjoying a wide range of activities, many of which are not contingent on one's economic status, like enjoying nature, friends, music, books, and even children. While these may have little to do with one's standard of living (a poor man can appreciate nature as much as a rich man), those who are undernourished and hence lethargic and physically drained, or worse, anaemic or ill, cannot really savour these activities. They cannot enjoy them to the fullest. With poor nutrition, even those aspects of their quality of life which are non-economic, suffer.

The implications of improved nutrition on population growth, and the relationship between population and nutrition are not so simple after all. As nutrition improves, more people live longer, which increases the population, which is the basic problem in the first place. Perhaps this is not just another vicious circle. Better nutrition and keeping more children alive may actually be an important precondition to the *ultimate* reduction of the population growth rate, even if the short-term effect is an increase.

Better health—smaller family

One of the major obstacles to effective family planning is motivation and one reason why people are not motivated to practise family planning is that they *want* more children. While they want more children for a variety of reasons—prestige, carrying on the family name or supplementing income, a very important one is security in old age in the form of sons. In most developing countries, because of the high infant mortality rates, a family must have several sons to ensure that at least one will survive to take care of his parents in their old age. Hence there is a desire for large families, especially sons, as insurance against a very uncertain future.

If there was a greater assurance that a son would survive to adulthood by lowering infant mortality then people may not need—or want—large families. One prerequisite to reducing the number of births and hence the population growth rate, paradoxical as it may seem, is to reduce the mortality rate. This has been shown in several countries where, as death rates have declined, birth rates have also begun to fall.

The greatest impact in reducing the death rate would be made by reducing infant and child mortality rates. Basically, this depends on:

1. Decreasing the incidence of disease; and
2. Increasing the individual's ability to withstand illness.

While public health measures have generally controlled diseases such as smallpox, cholera, plague, and malaria; strengthening the individual's general resistance to illness is not as visible and clear cut. One important factor is the nutritional state of the child. Due to their lowered resistance, many malnourished children die from childhood complaints like measles, chicken-pox and colds, which are considered minor illnesses in better nourished populations. Also, the already poor nutritional condition of children with diarrhoea is aggravated when nutrients are lost and solid foods that might replace them are withheld because of ignorance and custom. Malnutrition also affects the unborn, reducing the foetus' chances of survival, and where it survives, giving it an inborn handicap—small stature or mental deficiency. An anaemic mother often produces children who are weak, underweight, or premature, and stillbirths, miscarriages and birth abnormalities are common. The risk of early death, therefore, is compounded by the malnutrition of both child and mother.

A more positive way of looking at the relationship between nutrition, health and population might be summarized by a caption on the cover of a WHO magazine, *World health:* 'A healthy child, a sure future'.[3] A healthy, well-nourished child has a sure future and a high chance of survival, which in turn, results in a lower birth rate. If it is true that the best way to reduce the high population growth rate is by raising the economic level of the population, perhaps this is due, among other things, to the improved nutrition of children. Again, the complexity of the relationship between health, nutrition, and population is evident. One might argue that a rise in the economic level is a result of the better nutrition and health of its population because of an increase in mental and physical vigour. On the other hand, a rise in the economic level could be the cause of better nutrition. Either way, there is a definite positive relationship.

Similarly, it can be said that family size and nutrition are directly related—smaller families tend to have better nutrition, while better nourished people, because of lowered death rates, tend to have smaller families. Whichever comes first is academic. The important thing is that becoming aware of the relationships between nutrition, health, and population may be prerequisite to informed decision making and planning—from an individual's choice of food, to the size of family desired, and even whether to breast-feed or not. Therefore, although there are no easy solutions to problems related to population, nutrition, and health, the issues should be presented and discussed. In-school and out-of-school population education, consequently, plays a very special role—one that will contribute toward populations that will enjoy a quality of life characterized by good health, and a full, productive, happy life.

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[3] *World health,* the magazine of the World Health Organization, February–March 1979, cover.

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Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

POPULATION CHANGE, RESOURCES AND ENVIRONMENT

Today's world is facing at least half a dozen problems of crisis dimension; and environmental pollution is one of them. This problem is at present more visible in technologically advanced countries than in the developing countries. Some developing countries consider environmental pollution the result of affluence. They believe that the most serious problems of environmental pollution are among the affluent nations because they are the heavy consumers and polluters. Progress and affluence in the technologically developed countries has been achieved at the expense of depletion of natural resources and deterioration of the environment at the global level. Because developing countries have not reached the western levels of industrialization, it is often argued that they have little need for concern about the environment as they do not have the kind of environmental problems recently identified in the developed countries. The main problems in the developing countries are the provision of the basic physical and social needs of the people such as food, shelter, clothing, education, health and employment. A similar kind of argument was advanced at the Stockholm Conference in 1972. It was argued by some countries that at present the problem of environmental deterioration in the developing countries is not due to industrialization but due to their poverty and lack of development. The set of problems of environmental deterioration arising out of poverty has been summed up by Gamani Corea of Sri Lanka as follows:

> Ours are the problems of poor societies: the problems of bad water, poor housing, disease and sickness, lack of sanitation and sewage facilities, inadequacy of nutrition and vulnerability to natural disasters. These problems have not arisen from an excessive degree of development; rather, they reflect the inadequacy of development. Thus, while the rich countries may look upon development as the cause of environmental destruction, the poor countries cannot but look upon development as the cure, as the means of remedying basic environmental problems. In this sense, therefore, the concern with environment in the developing world is but an aspect of

> the commitment to development. There is no inherent antagonism, no inherent conflict between the goals of environment and the goals of development. They are but facets of the same problem.[1]

The Prime Minister of India in her address to the Conference said that poverty was the greatest polluter and asserted that:

> It is an over-simplification to blame all the world's problems on increasing population. Countries with but a small fraction of the world's population consume the bulk of the world's production of minerals, fossil fuels and so on. Thus we see that when it comes to the depletion of natural resources and environmental pollution, the increase of one inhabitant in an affluent country, at his level of living, is equivalent to an increase of many Asians, Africans or Latin Americans at their current material levels of living.[2]

From the foregoing discussion we find that many people in the developing countries attribute environmental pollution to affluence and industrialization. But there is no way to cancel the number of people from the equation. In any society—agricultural or technological, each human being has a negative impact on the environment. This impact can be expressed, in the simplest terms, by the relation:

$$I = P.F.$$

I is the impact on the environment, P is the population and F is a function which measures the per capita impact. I increases with increases in population as well as increases in per capita consumption of resources. Population increase and per capita consumption have a synergetic effect on the environment which means that the individual effects of population increase and of per capita consumption on the environment are multiplied rather than added.

Even if we keep one factor constant the increase in the other can cause environmental disruptions of significant dimension. Assuming that population increase is halted and the per capita consumption is increased, or vice versa, we would quickly run out of vital resources and cause ecological disruptions in many parts of the world.

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[1] ECAFE. *Report and selected papers of the Seminar on Ecological Implications of Rural and Urban Population Growth.* Asia Population Study Series no. 10. Bangkok, ECAFE, 1971. p. 31

[2] Address of Mrs. Indira Gandhi to UNCHE, 14 June 1972. Reproduced in Government of India, Office of Environmental Planning and Co-ordination, Agenda Notes for the Second Meeting of the *National Committee on Environmental Planning and Co-ordination*, Vol. 1, July 1972. p. 4.

As the three important factors responsible for environmental pollution are population growth, increase in affluence, and industrialization, we will discuss these briefly.

Population growth and the environment

In order to understand the impact of population growth on the environment, it might be useful to consider the natural processes by which a balance is maintained between population and the environment as an ecosystem. An ecosystem consists of living (organic) and non-living (inorganic) components which are in balance with each other through a cyclic process. The inorganic matter is replenished by the organic matter through death and decay of the living things which in turn support the life activities in the ecosystem. Any drastic change in either of the components can disrupt the cycle, and thereby destroy the balance in the ecosystem.

Small organisms such as bacteria, amoebae or yeast possess a tremendous capacity for growth. A bacterium dividing every 20 minutes would produce a colony one foot deep over the entire earth in a day and a half. An hour later, the layer of bacteria would be well above our heads. Along the same lines, if the human population continues to grow at the present rate (doubling every 35 years) for the next 900 years then there will be over 60 million billion people, or about 100 persons for each square metre of the earth's surface–land and sea.[3]

These are theoretical rates of growth, not actual ones. The ability of the population to grow is called the biotic potential. Different animals have different biotic potentials. For example, man has a lower biotic potential than the amoeba or bacterium but a higher potential than the elephant or tiger.

Under natural conditions no animal or plant can grow to its fullest potential as it is checked by what is called environmental resistance. This environmental resistance may include both the physical environment and the cultural one. Environmental resistance exists when one or more factors of the environment become limiting, and decrease the birth rate or increase the death rate or both. The limit of the biotic potential of a population imposed by environmental resistance under a given set of conditions is called the carrying capacity of the environment. The relationship between the biotic potential, population growth and environmental resistance in the case of animals and plants forms a characteristic sigmoid or 'S-shaped' or logistic curve as indicated in Table 1 below.

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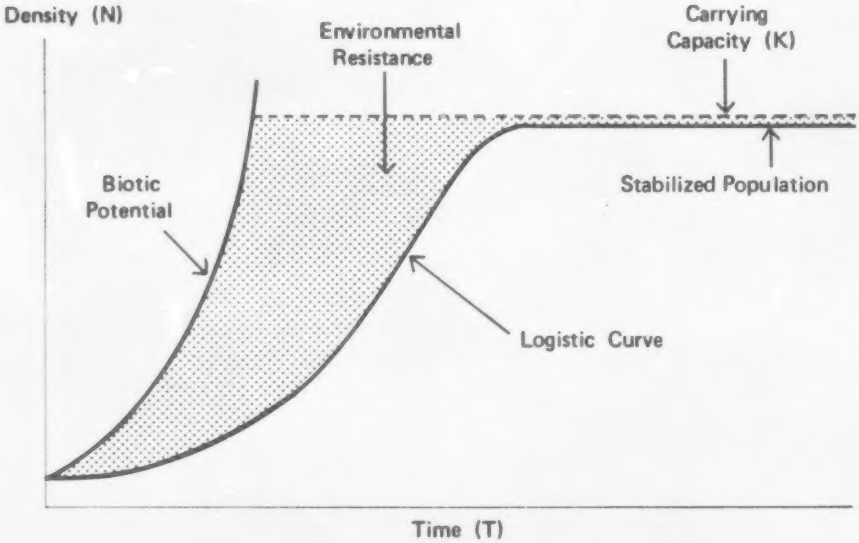
[3] Ehrlich, Paul R. *The population bomb.* New York, Ballantine Books, 1968. p. 3.

Table 1. Theoretical relationship between biotic potential, environmental resistance and logistic curve



where D = Death rate,

Biotic Potential $= \frac{DN}{DT} = TN$

Environmental Resistance $= 1 - \frac{K-N}{K}$

Logistic Curve $= \frac{DN}{DT} = TN - \frac{K-N}{K}$

There are direct as well as indirect effects of population growth on the environment. Other things being equal, the greater the population, the more significant are the changes brought about in the environment. More people make more demands on food, energy, housing, clothing and transportation, all of which lead to environmental pollution. Poor quality or insufficiency of food supply, sanitation, water supply, housing, employment, and health and other services are common problems in countries with high rates of population increase. The problems of domestic sewage and solid waste disposal are directly related to the number of people. As the number of people increases, the space per person for waste disposal decreases. Thus small mountains of dumped waste are common sights in almost any urban area.

Water pollution resulting from sewage and industrial waste provides a clear example of the effect of unplanned population growth on the environment. The carrying and the decomposing capacities of the rivers are strained to their maximum by increases in urban population and by the development of industrial complexes leading to the disturbance of river ecosystems. For example, if just a few people per square kilometre live along a large river and their sewage is dumped directly into the river then natural purification will occur. But if the population increases, the decomposing ability of the river will be surpassed and either the outgoing sewage or the incoming water–or both–will have to be treated if river water is to be used for drinking or for irrigation purposes.

As an extreme example, in India, 13 million people are added each year to the country's population. For meeting the basic needs of these additional people one needs to provide each year, about 12,545,300 additional quintals of food (a quintal in India is 100 kilograms), 2,509,000 additional houses, 126,500 additional schools, 372,500 additional teachers, 188,774,000 extra metres of cloth and 4,000,000 additional jobs.[4] This has not only had an impeding effect on social and economic development activities in India but also an adverse effect on the total environment. The cases of other developing countries which have high rates of population growth are comparable.

Table 2 on the following page gives an illustration of the relationship between increasing population and environmental deterioration. More people need more food, energy, housing, clothing, transport, and all of this leads to environmental pollution.

Rising affluence and the environment

Since 1950 the annual growth in global demand for goods and services has been about 4 per cent. The world's population has been growing at a rate of about 2 per cent per annum. The remaining 2 per cent has been absorbed by the rising rate of consumption.

The race among the countries to achieve a higher rate of economic growth is a significant dimension of the 'crisis' problems. Economic growth means more consumption of resources. For example, the annual

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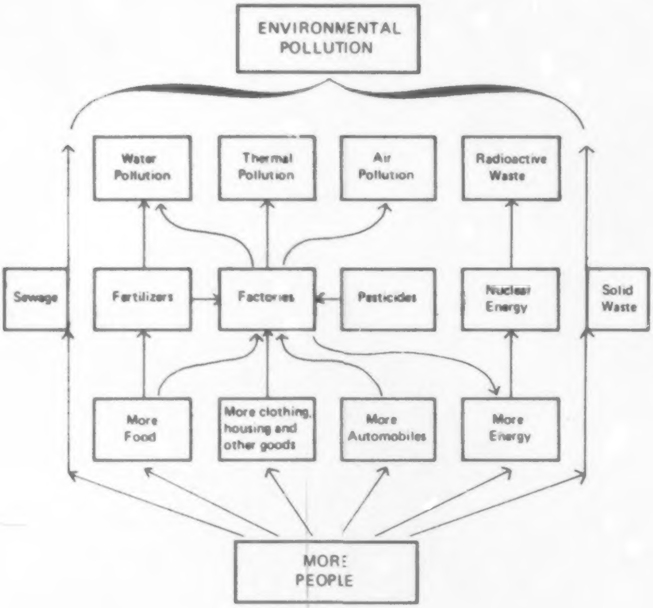
[4] India. Ministry of Health and Family Planning. Department of Family Planning. *Population problems of India.* New Delhi, 1967.

GNP of Western Europe in the late 1960s was about 4.4 per cent which was associated with 7 per cent annual increase in oil consumption. Japan's annual growth of about 12.4 per cent in that period was accompanied by a 17.4 per cent increase in oil consumption. Similarly, the North American economy grew at an annual rate of 3.7 per cent during the period 1965-1970 and the oil consumption increased at the rate of 4 per cent. The same situation prevails with regard to the consumption of other resources. During 1964-1966 the per capita consumption of grain by the average Canadian, American and Briton was five times, four times and three times respectively that of an average Indian (Table 3).

Table 2. The relationship between population growth and environmental pollution


ENVIRONMENTAL POLLUTION
Water Pollution
Thermal Pollution
Air Pollution
Radioactive Waste
Sewage
Fertilizers
Factories
Pesticides
Nuclear Energy
Solid Waste
More Food
More clothing, housing and other goods
More Automobiles
More Energy
MORE PEOPLE

Source: R.C. Sharma. *Population trends, resources and environment: handbook on population education.* Delhi, Dhanpat Rai & Sons, 1975. p. 249

Similarly, during 1970, energy use in the United States, the United Kingdom and France was about 150 times, 100 times and 50 times respectively that of India (Table 4). Even in countries where population growth is less then 1 per cent per annum, the demand in domestic food supplies is much higher. For example, in Japan and France, where population is growing at about one per cent per annum and in the Federal Republic of Germany where population has almost stopped growing, there is a trend towards a higher demand for food supplies.

Table 3. Annual per capita grain consumption–selected countries, 1964-66 average

Country	Grain consumed directly (pounds)	Grain consumed indirectly (pounds)	Total grain consumed (pounds)	Grain consumed as multiple of Indian consumption
Canada	202	1,791	1,993	5
United States	200	1,441	1,641	5
U.S.S.R.	344	883	1,227	4
United Kingdom	169	856	1,025	3
Argentina	223	625	848	2
West Germany	160	588	748	2
Mexico	305	242	547	2
Japan	320	211	531	2
China	312	118	430	1
India	288	60	348	1

Source: FAO. *Food balance sheets, 1964-66 average* and U.S. Department of Agriculture.

In Indian equivalents,* therefore, the population of the United States is at least four billion. And the rate of growth is even more alarming. We are growing at one per cent per year, a rate which would double our numbers in 70 years. India is growing at 2.5 per cent. Using the Indian equivalent of 25, our population growth becomes ten times as serious as that of India. According to the Reinows in their recent book *Moment in the Sun* just one year's crop of American babies can be expected to use up 25 billion pounds of beef, 200 million pounds of steel and 9.1 billion gallons of gasoline during their collective lifetime. And the demands on water and land for our growing population are expected to be far greater than the supply available in the year 2000.[5]

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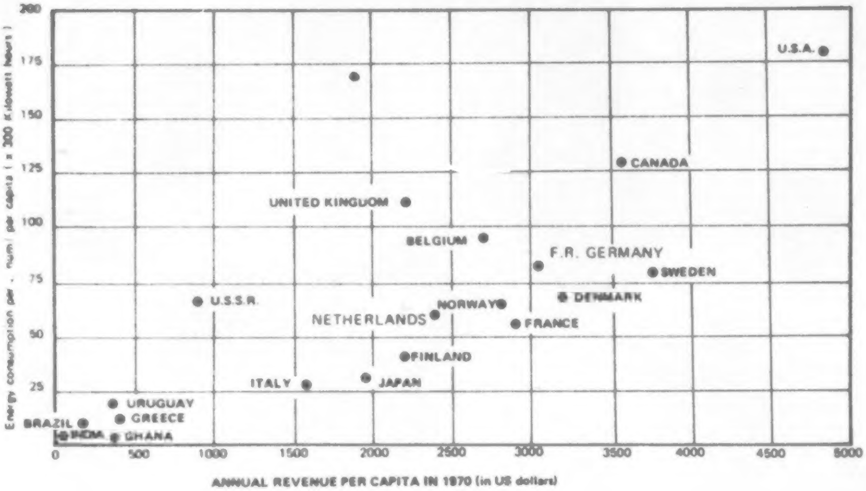
* An Indian equivalent is defined as the average number of Indian citizens required to have the same detrimental effect on the land's ability to support human life as would the average American.

[5] Marden, Parker G., and Dennis Hodgson (ed.). *Population, environment and the quality of life.* New York, AMS Press, Inc., 1975. p. 15.

Table 4. Energy consumption and GNP per capita



Source: Unesco. *Teacher's study guide on the biology of human populations: Asia.* Paris, Unesco, 1975. p. 109.

The effect of affluence can perhaps be better understood in the context of the problem of food. In addition to the increasing demand for food due to increases in population, there is a trend in the dietary habits of the people in developing as well as developed countries which is contributing equally to the problem of food supply. With the improved economic status of the people in many countries, the composition of their diet has been changing. The effect of increased affluence on the world's demand for food is perhaps best understood by examining the grain requirements in different countries (see Table 3). During 1969-1970 the high income countries, forming about 30 per cent of the world population, accounted for 51 per cent of the total consumption of cereals. The higher rate of consumption of cereals in the developed countries is due to indirect utilization. The cereals which can be directly consumed by man are fed to cattle. Even protein-rich cereals, such as soya beans, form an important ingredient in livestock and poultry feeds throughout the world.

Food and Agriculture Organization (FAO) projections indicate that between 1970 and 1985, there will be relatively higher annual rates of increase in demand for fish (3.4 per cent), meat (3.1 per cent) and cheese

(2.8 per cent) in preference to cereals (2.4 per cent) per annum. In all the regions of the world, the use of cereals for livestock feed would grow more rapidly than the demand for direct consumption. By 1985, the developing countries would use 14 per cent of the total demand for cereals as cattle feed, whereas 66 per cent of the overall cereal demand of developed countries would be utilized as cattle feed. On a per capita basis the total demand for cereals in developed countries, which was nearly three times that of developing countries in 1970, would continue to grow more rapidly than in the developing countries. Should there be no substantial changes in the production techniques, it is assumed that the demand for cereals as livestock feed will increase from about 420 million tons in 1970 to 650 million tons in 1985, of which approximately 520 million tons would be required by developed countries.

The per capita amount of direct and indirect grain consumption continues to increase as per capita income climbs. The dietary habits of most of the countries in Western and Eastern Europe and Japan are now more or less comparable to those of the United States in 1940. As income continues to rise in these countries, a sizeable fraction of the additional income is being converted into a demand for livestock products, particularly beef. A similar trend in dietary habits is visible in developing countries with the increase in their per capita income. Because many countries lack the capacity to satisfy the growth in demand for livestock products entirely from indigenous resources, they are importing increasing amounts of either livestock products or feed grains and soya beans with which to expand their livestock production. As a result, in recent years soya beans have become one of the leading export products of the United States—surpassing export sales of wheat, corn and even high technology items. As yet, no nation appears to have reached the level of affluence where its per capita grain requirements have stopped rising.

In order to produce one pound of meat we have to feed the cattle seven to eight pounds of cereals, over and above other animal fodder. This is because not all the grains which are fed to the cattle are converted into meat—80 to 90 per cent of the energy is wasted during transfer from cereals to meat. The cereals which are fed to the cattle to get one pound of meat could instead feed seven or eight people. This means that more food has to be produced to meet the increasing demand for indirect consumption. Some of the ways which have been used to increase food production include putting more land under cultivation by cutting down the forests, the use of fertilizers, irrigation, the use of pesticides and insecticides, and the use of improved varieties of seeds. The environmental problems created by these measures to increase food production are well known.

Conclusion

Although increasing population, rising affluence and industrialization are responsible for environmental pollution, population growth is one of the major catalysts for creating environmental problems. Not only are there more people today than ever before and not only is the world population growing at an unprecedentedly rapid rate but also millions of people throughout the world are aspiring for a better life, with more material goods and modern conveniences. In view of the fact that the earth and its resources are finite it is unlikely that the expectations of the developing countries will be realized without drastic changes in the consumption patterns of the industrialized nations.

In their anxiety to achieve a higher level of industrialization to raise the standard of living, developing countries might be tempted to regard ecological problems as having relevance only for the developed countries. This may create, in the near future, severe problems of environmental deterioration which will be beyond the economic capacity of many developing countries to solve.[6]

The developing countries with their high rates of population growth are potentially destined to suffer severe environmental problems. At the present moment, since the main problems of the developing countries are to feed their people and to eradicate poverty, their developmental patterns have to be different from those of industrialized societies. The type of development that is going to solve the problem initially must have its focus on rural development, with emphasis on land reform, on producing enough food, on community agriculture and on labour-intensive technology.

For all the countries, developed and developing, the basic challenge today is to design a developmental strategy that will provide a relatively satisfactory standard of living for everybody with a minimal level of resource consumption. As has been rightly pointed out in *The ecologist, a blue print for survival (1972)*, we should try to develop a world system in which there is: (1) minimum disruption of ecological processes; (2) maximum conservation of material and energy or an economy of stock rather than flow; and (3) a population in which the individual can enjoy, rather than be restricted by, the first three conditions. In order to have such a system we shall have to reverse the trend from over consumption and wastage of resources to conservation and efficient utilization of resources.

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[6] Sharma, R.C. *Population, resources and environment.* Paper presented at Unesco Group Training Course in Population Education, Bangkok, 14 July–15 August 1975. 10 p. mimeo.

> If present trends continue, the world in 2000 will be more crowded, more polluted, less stable ecologically, and more vulnerable to disruption than the world we live in now. Serious stress involving population, resources, and environment are clearly visible ahead. Despite greater material output, the world's people will be poorer in many ways than they are today.[7]

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Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

POPULATION GROWTH AND EMPLOYMENT

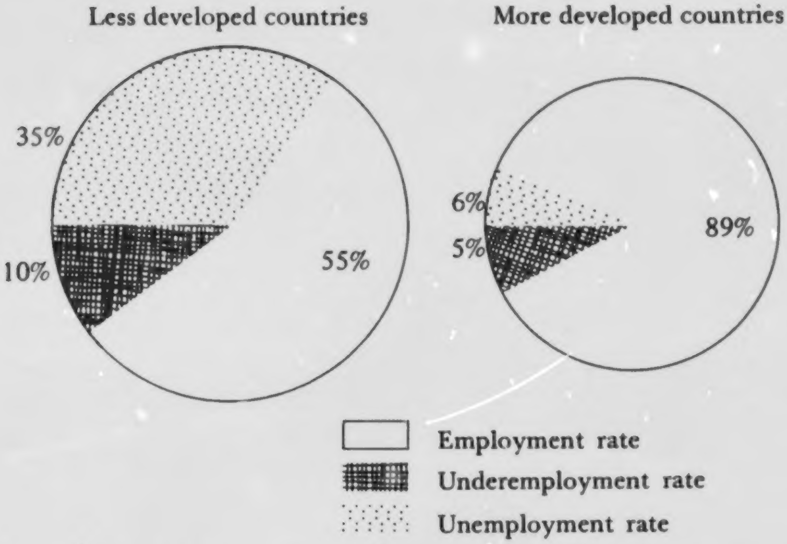
In the wake of rapidly expanding population in many of the developing countries, the growth of manpower surpluses has been one of the most serious economic, social and political problems. Additional manpower is becoming available at a faster rate than new jobs can be generated, resulting in ever-increasing unemployment and under-employment.

For a meaningful analysis of the interrelationship between population growth and unemployment it is necessary to understand the conceptual framework used to distinguish between persons in the labour force (the employed) and the rest of the population. According to commonly accepted standards, the labour force comprises all persons 15 to 64 years of either sex including employers, the self-employed, unpaid family workers, employees and the unemployed. The concept appears quite simple; but difficulty arises when it is to be translated into operational terms.

The most acute problem in labour force classification is the identification of unpaid family workers most of whom are women, who combine household chores with economic activity. The concept gets particularly complicated in the developing countries where a large part of economic activity is seasonal and takes place in family enterprises. There is also an increasing volume of evidence which suggests an increasing under-utilization of human labour potential in many of the developing economies in the Asian region. Definitions of under-utilization suffer from the same inadequacies as the definitions of employment and unemployment. Labour under-utilization has several identifiable characteristics which can be measured in terms of the duration and intensity of employment, income levels, productivity and ineffective allocation of labour. It is unlikely that one measure can be found to gauge these various aspects. A number of indexes reflecting the various facets of underemployment should be able to provide a sufficiently clear picture of labour under-utilization.

Another factor which should also be considered in understanding labour force participation is the fact that in many developing countries children below the age of 15 years are also engaged in some kind of work. In India, for example a significant percentage of children (about 16 per cent) help their parents at farm or household work or even work as labourers.[1]

Figure 1. Estimated rates of world-wide employment, underemployment and unemployment, 1975



Source: IPPF. *Population and employment.* London, 1979, p. 5. (People, vol. 6, no. 3)

Employment and productivity

Population growth has an indirect repercussion on production through its effect on labour productivity. The graph in Figure 2 shows that although the labour force in the developing countries is about twice that of the developed countries, the GNP is about five and a half times less.

An actual incident which occurred in Japan in the early 50s illustrates the effect of population growth on labour productivity:

> In the autumn of 1952 the personnel manager of an iron and steel company in Kawasaki was shocked when he visited the victim of an industrial accident in the company-owned hospital and listened to him talking in a state of delirium about his child's fever. His child's illness had prevented him from getting

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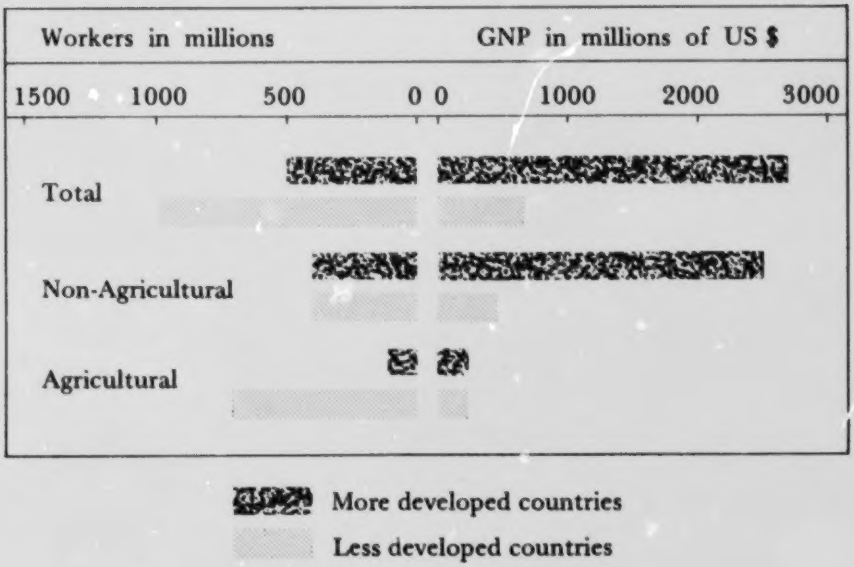
[1] Sharma, R.C. *Population trends, resources and environment; handbook on population education.* Delhi, Dhanpat Rai & Sons, 1975, p. 122.

Figure 2. Employment and productivity in developed and developing countries



Source: ILO Regional Office for Asia and the Pacific. *Labour force and world population growth.* Special edition of the bulletin of labour statistics. Geneva, 1974. p. 21.

any sleep the previous night which in turn had resulted in his serious accident the next morning. The personnel manager realized intuitively that safety begins at home, and inspired by this incidental correlation between safety and a stable family life, he scrutinized the causes of industrial accidents which had occurred in the factory over the preceding years and found that about 70 per cent of all the accidents could be attributed to difficulties in the private lives of the employee. It was assumed that family size was a prime factor in the incidence of family problems. . .

. . . the employer decided to implement a family planning programme within the factory. Although the primary aim of this programme could be linked with occupational safety, this in turn, has a direct bearing on worker productivity which in turn is related to costs of production and hence affects the

> economic viability of the firm. There thus appears an identifiable linkage between population growth in terms of family size, potential productivity of the labour force and economic growth.[2]

Interrelationship of demographic factors and labour force

During the 1970s, the growth of the labour force in the great majority of developing countries in the ESCAP* region took place more rapidly than during the 1960s (Table 1). This was the result of several factors, the major one being the rate of population growth during the 1960s and earlier. The slight retardation of population growth in the 1970s has not generally resulted in an increased proportion of working-age population in the region although moderate increases do appear in a few countries.

> It is almost self-evident that changes in population size must have repercussions on labour supply given a suitable time-lag. Again, the self-evident linkage between employment opportunities and the direction and volume of migration, which itself can be a significant component of the rate of population change, hardly requires elaboration. On the other hand there are relationships between employment and hence labour, and population changes which are more subtle.[3]

The various factors which influence manpower supply are:

1. Size of population and its distribution by age, sex and urban-rural location;
2. Marital status, and maternal status;
3. School enrolment;
4. Relationship between occupation and education; and
5. Socio-cultural norms.

Of course, all these factors are not equally important and their respective roles vary according to the age/sex group under consideration and the economic and social situation of the particular country.

The size of a country's population and its distribution by age, sex and urban-rural location are the most important determinants of the size of its labour force. The size of the labour force of a country is generally calculated by first estimating the size and the age/sex composition of its

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[2] UNFPA. *Labour and population.* New York, 1976, p.1. (Population profile no.5).

* The Economic and Social Commission for Asia and the Pacific.

[3] *Ibid.* p. 1.

Table 1. ESCAP region: labour force estimates, 1960, 1970 and 1975 growth rates, 1960s and 1970-1975

Country or area[a]	Labour force (million)			Growth rate (percentage per annum)	
	1960	1970	1975	1960–1970	1970–1975
Developing ESCAP	662.21	781.20	857.74	1.7	1.9
South and west Asia	247.44	295.12	326.60	1.8	2.0
Bhutan	0.44	0.52	0.57	1.8	2.0
Nepal	4.59	5.47	6.07	1.8	2.1
Sri Lanka	3.39	4.19	4.74	2.1	2.5
Afghanistan	4.95	5.95	6.60	1.9	2.1
Burma	10.63	11.90	12.88	1.1	1.6
Iran	6.43	8.22	9.35	2.5	2.6
Pakistan	14.45	17.36	20.26	1.8	2.6
Bangladesh	18.52	23.40	25.34	2.4	1.6
India	184.05	218.09	240.79	1.7	2.0
Southeast Asia	82.42	100.99	114.77	2.1	2.6
Singapore	0.55	0.73	0.85	2.8	3.2
Lao People's Democratic Republic	1.31	1.49	1.62	1.4	1.6
Democratic Kampuchea	2.30	2.85	3.21	2.1	2.4
Malaysia	2.71	3.53	4.14	2.7	3.2
Thailand	13.53	16.66	19.22	2.1	2.9
Philippines	10.97	13.75	15.71	2.3	2.7
Viet Nam, Rep. of	16.91	18.77	20.32	1.1	1.6
Indonesia[b]	34.15	43.20	49.70	2.4	2.9
North and east Asia	331.18	383.69	414.82	1.5	1.6
Mongolia	0.40	0.49	0.55	2.1	2.4
Hong Kong	1.19	1.62	1.87	3.2	2.9
Democratic People's Republic of Korea	4.77	5.99	6.95	2.3	3.0
Republic of Korea	8.24	10.98	12.67	2.9	2.9
China	316.59	364.61	392.79	1.4	1.5
Pacific[c]	1.16	1.41	1.55	1.9	2.0
Fiji[d]	0.11	0.15	0.17	3.3	2.4
Papua New Guinea	1.05	1.26	1.38	1.8	1.9
Developed ESCAP	49.45	59.91	64.45	2.0	1.5
New Zealand	0.88	1.10	1.21	2.2	1.9
Australia	4.12	5.32	5.90	2.6	2.1
Japan	44.44	53.49	57.34	1.9	1.4
Total ESCAP	711.65	841.11	922.19	1.7	1.9

Adapted from United Nations. *Economic and social survey of Asia and the Pacific.* Bangkok, 1978. p. 101.

Note: a. Listed in order of 1970 population size in each sub-group.

b Adapted from M. Leiserson and others. *Employment and income distribution in Indonesia.* (International Bank for Reconstruction and Development Working Paper, 1978. p. 9ff, mimeo.

c. Fiji and Papua New Guinea only.

d. Fiji, *Statistical abstract*, 1970/71 and *Current economic statistics*, January 1978.

population to which are applied the age/sex specific labour force participation rates. Factors influencing these rates generally vary according to whether consideration is given to men or women, the younger age group or the older age group and also whether the population resides in rural or urban areas.

Variation in fertility, mortality and migration are also likely to have a pronounced effect on the crude activity rate, labour force participation rates (the ratio of persons in the labour force to total population), on account of the accompanying changes in age composition. The change in the labour force will, of course, depend on the interaction of the variation in specific activity rates and population age structure.

Although population size and age structure have an important influence on the size of the labour force, almost all the developing countries in the Asian region are experiencing an increasing volume of rural-urban migration, more because of widespread underemployment in rural areas than in response to a felt need of the urban areas. Recent advances in education have tended to reinforce this pattern of movement, as a result of which underemployment in rural areas has shifted to urban areas in the form of unemployment.

Migration is often thought of as a means to bring about an adjustment in manpower supply and demand in a country or an area. However, if a careful watch is not kept on the magnitude and pattern of migration, it can also lead to imbalances in the geographical distribution of the population in general or the labour force in particular. The international migration or 'brain drain' of highly skilled personnel who are in short supply in the donor countries is thus viewed as a cause for alarm in several of the developing countries.

Participation of labour force by sex

There is a great difference in the labour force participation rates of males and females as shown in Table 2. Participation in the labour force by working age males ranges around 85 per cent in a representative selection of developing countries of the ESCAP region and has generally been declining since 1960. The chief reasons for this decline are that youths spend longer at school and there are earlier and more frequent instances of retirement among the workers due to an expansion of pension systems in the modern sector.

While the pattern of change in male participation between 1960 and 1970 without exception reflects a decrease in rates there are upward changes in female rates.

Table 2. Labour force participation rates by sex, 1960 and 1970 (age 15 and over) in selected countries in Asia (percentage)

Country or area[a]	1960			1970		
	Male	Female	Total	Male	Female	Total
South Asia						
Sri Lanka	83.9	27.4	57.6	81.8	28.0	56.4
Pakistan	90.0	9.2	51.8	86.0	9.2	49.2
Bangladesh	92.5	18.0	57.0	91.2	19.1	56.6
India	89.6	42.6	67.1	86.1	42.2	64.9
Southeast Asia						
Singapore	87.7	25.5	58.7	81.1	30.1	56.5
Malaysia	86.5	32.5	60.2	82.3	37.1	59.8
Peninsular[b]	88.7[c]	30.8[c]	61.0[c]	81.3	37.2	56.8
Thailand	89.5	81.5	85.4	86.6	73.2	79.8
Philippines	88.9	45.3	66.9	85.1	41.4	63.2
Indonesia	87.9	30.9	58.7	86.4	34.6	59.4
East Asia						
Hong Kong	90.4	36.6	64.0	84.8	42.7	63.9
Republic of Korea	86.8	27.6	56.5	81.8	38.1	59.6
Develop ESCAP						
Japan	85.0	50.5	67.2	84.3	51.0	67.2

Adapted from United Nations. *Economic and social survey of Asia and the Pacific.* Bangkok, 1978. p. 102.

Notes: Figures standardized for 1960 and 1970 do not necessarily match national publications.

a. Ranked by 1970 population size in each sub-group.

b. Peninsular Malaysia, 1957 and 1970, from population census data; age group: 15-64 years.

c. 1957.

Unlike the males, female participation rates vary greatly between countries and even between regions in a country. Cultural attitudes, demographic characteristics and the nature of economic activities have greater influence on female labour force participation. In more traditional societies female labour force participation is in general inhibited by customs and traditions which tend to restrict them from performing activities outside the home. The different factors which affect labour force participation rates of women, are the following:

1. Marital status;
2. Age at marriage;
3. Age of mother at the birth of the first child;
4. School attendance and educational level attained;
5. Number and ages of children;
6. Availability of employment opportunities which might be suitable for women; and
7. Socio-cultural norms and values.

The study of participation of females in the labour force is important from the point of view of its relationship to fertility. There are some population studies which show a relationship between fertility and the occupational status of women. Studies also indicate that in rural areas female labour force participation either has a positive or an insignificant effect on fertility. In contrast, in the urban areas the correlation is significantly negative. The review of the literature on the relationship between female labour force participation and fertility is summed up as follows:

> Research findings indicate that in rural areas where the type of female labour force is compatible with childbearing and the opportunity cost is low, fertility will not go down with high rates of labour force participation. In some cases, fertility may even go up, either because the increased income permits working mothers to enlarge their families or because the larger number of children draws the women into the labour force to increase family income. In urban areas, where work is not compatible with childbearing and where the opportunity costs of children are likely to be high, labour force participation lowers fertility.[4]

Conclusion

If one looks at the relationship between population change and employment, the impact of population growth assumes considerable importance. With the decline of infant and child mortality rates and increase in the expectancy of life, the dependency load in the developing countries with higher rates of population growth is rapidly increasing. This is creating unprecedented unemployment and underemployment in the developing countries although the developed countries are also facing increasing unemployment not because of their population growth but because of the use of labour-saving technologies and other socio-economical and political factors.

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[4] ILO Regional Office for Asia and the Pacific. *Report and background papers [of the] seminar on population, employment and development in Asian countries, Bangkok, 6-9 December 1978.* Bangkok, 1979. 1 v. [various paging]

The anti-Malthusian argument put forward in the early nineteenth century that 'with every mouth, God sends a pair of hands' raises two very important questions. Where will the hands be employed? Given that the hands can be employed, what is the time difference between the commencement of consumption by the mouth and production by the hands? How is that gap bridged? In other words, population growth ultimately increases the supply of labour. If population is increasing at a rapid rate, then eventually the supply of labour will increase at more or less the same rate.[5]

In most of the developing countries in the Asian region about 40 per cent of the urban population in the age-group 15–24 are unemployed or underemployed. Such a situation can be explosive. The preamble to the charter of Unesco states that 'wars begin in the minds of men'. If this is true of any man, it is likely to be even more so in the 'empty minds' of the unemployed.

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3. ILO. Regional Office for Asia and the Pacific. *Report and background papers [of the] Seminar on Population, Employment and Development in Asian countries, Bangkok, 6–9 December 1978.* Bangkok, 1979. 1 vol. (v.p.)
4. _______. _______. *World employment programme.* Geneva, 1979. 99 p.
5. Jolly, Richard, et. al., eds. *Third world employment: problems and strategies.* Harmondsworth, Penguin Education, 1973. 448 p.
6. Rodgers, G.B., et. al. *On the evaluation of population and employment policy.* Geneva, ILO, 1975. (Population and employment working paper no. 5)
7. Sharma, R.C. *Population trends, resources and environment; handbook on population education.* Delhi, Dhanpat Rai & Sons, 1975. 296 p.
8. UNFPA. *Labour and population.* New York, 1976. 47 p. (Population profile no. 5).

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[5] UNFPA. *Labour and population.* Op. cit.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

POPULATION, MIGRATION AND URBANIZATION

Introduction

The problem of 'over-population' in developing countries has, until recently, been viewed in terms of absolute numbers and growth rates of population and the policies required to control fertility. Population change is not only a result of changes in mortality and fertility rates but also the number of people who move their places of residence. This process is known as migration. During their lifetime many people move from place to place to work, to live and to pursue a better way of life. Such movements create a number of dislocations and problems but they also have tremendous potential for development.

Table 1. Growth of urban and rural population from 1970 to 1975 by world region

World region	Population change (millions)		Annual percentage growth		Percentage of urban growth accounted for by migration
	Urban	Rural	Urban	Rural	
More developed					
Regions	65.5	-17.8	1.7	-1.0	51
Europe	21.2	- 7.2	1.4	-0.9	56
North America	13.4	- 2.9	1.5	-1.0	42
USSR	17.1	- 4.8	2.3	-0.9	59
Japan	9.1	- 2.4	2.3	-1.6	47
Less developed					
Regions	140.6	169.2	4.0	1.7	43
South Asia	45.1	91.8	4.1	2.1	41
East Asia	34.9	37.9	3.4	1.2	52
Latin America	31.7	6.7	4.3	1.1	35
North Africa and West South Asia	16.1	8.1	4.7	1.5	43
Africa (except above)	12.5	24.5	4.8	2.1	49
Pacific Islands	0.2	0.3	6.4	1.6	67

Source: Adapted from ***World population trends and policies: 1977 monitoring report, vol. I. Population trends.*** United Nations, New York, pp. 114–117.

The majority of the world's population is distributed in only about 30 per cent of the world's land area, (35 to 40 per cent of the world's land area is physically uninhabitable).[1] Over a period of time, the population tends to cluster, especially in urban areas, and most of these population settlements are taking place in increasingly concentrated areas. Between 1970 and 1975, the combined urban populations of the less developed countries increased by over 140 million people. This increase was more than twice that of the urban population in the more developed countries. Furthermore, the annual growth rate of the urban population at 4 per cent was more than double the 1.7 per cent experienced in the more developed nations.[2] (See Table 1).

Of the present world population (approximately 4,374 million), 41 per cent inhabit urban areas. By the year 2000 when the population will be about 6,300 million, the proportion will reach 51 per cent. This represents an increase of 1,400 million urban dwellers. The urban population of the more developed countries will have expanded by only one-third, whereas that of the less developed countries will have more than doubled.[3]

The source of change will also differ; in the more developed countries the increase will be caused mainly by migration; in the less developed countries by natural increase. In the 1980-1990 decade, however, it is projected that migration in the less developed countries will constitute only 42.2 per cent of urban growth while natural increase will account for 57.8 per cent.[4]

Urbanization, *per se,* is not the problem because it is a feature which goes with development. As recently as a decade ago, internal migration in general and rural-urban migration in particular were considered advantageous events. Surplus rural labour was being shifted from traditional agriculture to provide cheap manpower to facilitate the modernization and expansion of industrial complexes in the urban centres. Manpower from places where productivity was zero was therefore being fully used to become more productive in a place where capital and technology were

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1. Oppenheim, John. "Population distribution in geographic context." In: Gosling, Peter, et al, eds. *Population redistribution: patterns, policies and prospects.* New York, United Nations Fund for Population Activities, 1979. p.7. (UNFPA Policy development studies no. 2)
2. United Nations. Department of International Economic and Social Affairs. *World population trends and policies–1979 monitoring report, vol. 1: Population trends.* New York, 1980. p. (Population studies no. 62)
3. Dotson, Arch. "Can we get there from here? " *Populi,* Vol. 7, no. 3, 1980. p. 36.
4. Laquian, Aprodicio A. "People on the move," *Populi,* Vol. 7, no. 3, 1980. p. 36.

present. Despite their congestion, urban areas are still considered the focus for change and economic activities that create sustained development.

However, rapid migration is no longer viewed as a beneficial event necessary to solve the problems of a growing urban labour demand. On the contrary, migration today is being increasingly looked upon as contributing to urban labour surpluses and aggravating the already rising urban unemployment problems. It also becomes a bigger problem if it continues to be unbalanced spatially or concentrated in the metropolitan centres of less developed countries. The majority of the people outside these centres have never received the benefits of urbanization and development. The carrying capacity of urban centres can no longer cope with the population pressure. Urban centres are not equipped to handle the inflow and congestion has put a tremendous strain on public services. Many of the rural migrants live in unhealthy, dirty and cramped squatter areas with no regular water supply and hardly any access to garbage disposal and other services. The little income that they get goes mostly on food. On top of this they are faced with traffic jams, pollution, high crime rates and social unrest.

Despite recent estimates that natural increase (excess of births over deaths) is becoming a more important component of urban growth than rural-urban transfer (excess of in-migrants over out-migrants), the share of migration in the total population growth has been consistently growing in both industrialized and developing countries.

The process of migration

From a demographic point of view, the process of migration involves three elements: (a) an area of origin which the mover leaves and where he or she is considered an out-migrant; (b) the destination or place of in-migration; and (c) the period over which migration is measured.[5] Generally, there are two basic types of migration—internal and international migration. The movement of people within a country for the purpose of changing home is called internal migration while the movement of people between countries is called external or international migration.

Internal migration

Internal migration consists of : (1) rural-to-urban migration; (2) urban-to-urban migration; (3) rural-to-rural migration; and (4) urban-to-rural migration. Among these four types of migration various patterns or processes are followed. First of all, migration may be *direct* when the migrant goes directly from the village to the city and stays there permanently. It could also be *circular migration* where the migrant makes a series of moves to the city and periodically returns to his home village. This circular migration might be seasonal; he moves to the city when it is not planting season and returns to the village when he is needed on the farm. *Stage migration* is another form of migration toward cities. The migrant makes a series of moves, each to a city closer to the largest or fastest growing city. Urban migration can also be permanent or temporary. Temporary migration may be one-time or cyclical. Studies have shown that generally, rural-urban migration eventually becomes permanent because most migrants end up living in the city.

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[5] **Goldstein, Sidney, and Alice Goldstein. *Surveys of migration in developing countries: a methodological review.* Honolulu, East-West Population Institute, 1981. p. 51. (EWPI paper no. 71)**

Rural-to-urban migration. The most dominant pattern of internal migration is rural-urban. The net transfer of population from rural to urban areas constitutes the most significant aspect of migration in the less developed world today.

Half of the world's 18 fastest growing cities are also found in Asia (the other half shared by Latin America and Africa). Asian cities with the highest rates of urban growth forecast for the next decade are Karachi (92 per cent), Bandung (68 per cent), Baghdad (85 per cent), New Delhi (77 per cent), Teheran (76 per cent), Bangkok (73 per cent), Seoul (69 per cent), Jakarta (59 per cent) and Manila (55 per cent).[6] At least half of the population growth in the cities is attributed to the influx from the rural areas.

The contribution of migration to urbanization is very evident from the following cases:

The rapid urbanization and increase in urban growth from 1960 to 1970 in the Republic of Korea can be attributed to net migration. Out of the total increase of 5.8 million, 3.6 million was through net migration.[7] In Japan, the basic pattern of migration is the movement of population from all rural areas into two large urban areas (Minami-kanto and Keihanshein) of which Tokyo and Osaka are the central cities.[8]

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[6] United Nations Fund for Population Activities. *Asia: home of half the world.* New York, 1977. p. 18 (Population profiles 6)

[7] ESCAP. *Comparative study on migration, urbanization and development in the ESCAP region—country reports I: migration, urbanization and development in the Republic of Korea.* Bangkok, 1980. p. 93.

[8] Unesco. *Population education in Asia: a source book, booklet 3: Population growth and distribution in the Asian region.* Bangkok, 1975. p. 31.

In Bangladesh, despite the low level of urbanization, the rate of growth of the urban population has been exceedingly high in recent years. Between 1961 and 1974 the urban population grew at an average annual rate of 6.7 per cent compared with a growth rate of 2.3 per cent for the rural population. The Bangladesh urban growth rate is, in fact, higher than Thailand, which was 4.8 per cent (1960–1967) and India, 4 per cent (1961–1971). According to 1974 estimates based on census data, 48 per cent of the total urban population were migrants mostly drawn from the rural areas.[9]

In Indonesia, internal migration in Java constitutes about 60 per cent of all recorded movements in the country. The 1971 census also showed that Jakarta has the highest rate of net migration (36.74 per cent annually) and that more than 40 per cent of the residents of Jakarta had come from other provinces.[10]

The evidence of seemingly rapid urbanization and massive migration to the cities has been analysed from a different angle in a recent paper by Ernesto Pernia. Pernia's analysis reveals that urbanization in Asia is not taking place as rapidly as is the common impression.[11]

Tables 2 and 3 illustrate aspects of urbanization in the Asian region in 1980.

Table 2. Urban population and percentage of urban population in Asia in 1980

Region	Per cent urban	Urban population (in millions)
South Asia	22.0	201.1
South-East Asia	22.7	61.4
Centrally Planned Asia	26.1	241.4
East Asia	72.5	112.9

Source: Ernesto Pernia. *Asian urbanization and development: a cross-country analysis.* Quezon City, University of the Philippines, n.d.

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[9] ESCAP. *Population of Bangladesh.* Bangkok, 1981. p. 34. (ESCAP country monograph series no. 8)

[10] Hugo, Graeme. "Migration to and from Jakarta." In: Pryor, Robin, ed. *Migration and development in South-East Asia: a demographic perspective.* Kuala Lumpur, Oxford University Press, 1979. p. 193.

[11] Pernia, Ernesto. *Asian urbanization and development: a cross-country analysis.* Quezon City, University of the Philippines, n.d.

Table 3. Rate of urbanization in Asia over three decades

Region	1950–60	1960–70	1970–80
South Asia	11.3	14.5	19.4
South-East Asia	20.3	16.0	19.0
Centrally Planned Asia	82.8	21.4	24.3
East Asia	53.3	45.8	46.8
World	25.7	17.0	17.3
More developed regions	28.5	28.7	28.3
Less developed regions	39.3	24.3	26.4

Source: Ernesto Pernia. ***Asian urbanization and development: a cross-country analysis.*** Quezon City, University of the Philippines.

The data indicates extremes in the urbanization levels of these regions. At one end is East Asia which corresponds closely to the average for the more developed world, and at the other end are South, South-East and Centrally Planned Asia* which fall below the mean urbanization figure for the less developed world and far below the average for the world as a whole. Table 3 reveals that the Asian regions have been urbanizing rather slowly over the past three decades.

Urban-to-urban migration. Urban centres also expand due to migration from other urban centres. This type of migration involves the transfer of people from smaller urban areas to bigger cities.

In Asia, the predominant types of migration are still rural-to-urban and rural-to-rural, but urban-to-urban migration is increasing (12.8 per cent in the Philippines and 17.5 per cent of all migration in the Republic of Korea).[12]

Rural-to-rural migration. In Asia, the largest component of the population movement consists of individuals and groups moving from one rural location to another. The rural gain for the less developed countries between 1970 and 1975 was estimated at 165 million, which was actually 16 per cent higher than their urban gain.[13] The less developed countries comprised 85 per cent of the world rural population in 1975. About one-third of the huge anticipated increases in the populations of the less developed regions during the remainder of this century will be accommodated in the rural areas.

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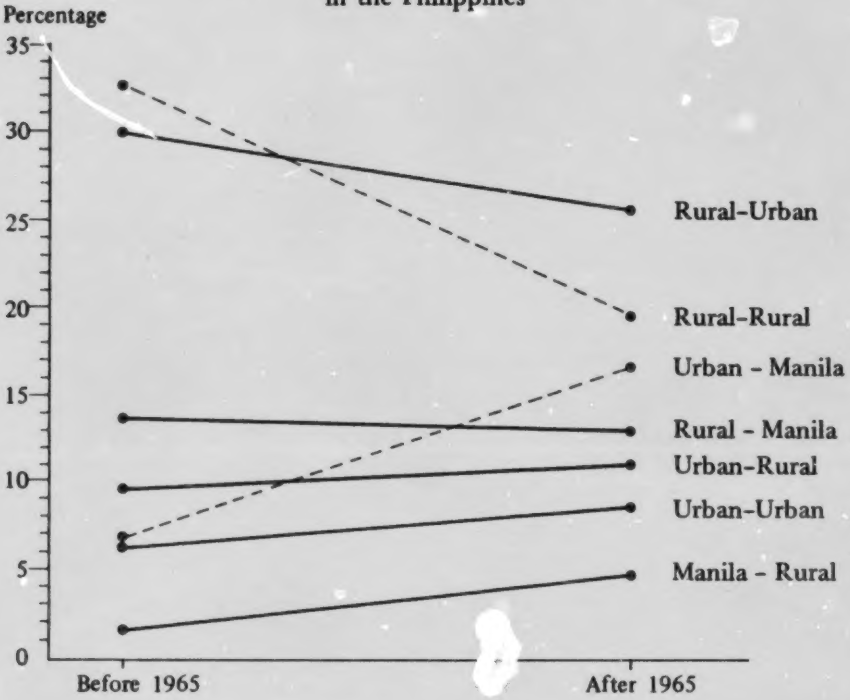
* Centrally Planned Asia comprises the Peoples Republic of China and North Korea.

[12] ESCAP. *Op. cit.* p. 62.

[13] United Nations. *Op. cit.* p. 126.

Figure 1. Type of migration streams before and after 1965 in the Philippines



Source: ESCAP. Country Monograph Series No. 5: *Population of the Philippines.* Bangkok, ESCAP, 1978.

Migration in Sri Lanka, with the exception of movement from Jaffna, is still dominated by rural movement. The migration flow to rural destinations is 56.8 per cent.[14] Among the eight types of migration in the Philippines, rural-to-rural population movement (27.7 per cent), comes second to rural-urban population movement (28.3 per cent).

Gosling and Abdullah in their article *Rural population redistribution*[15] report that studies of the resettlement of Thai farmers flooded out by the Nam Pong reservoir showed that, when forced to move, rural

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[14] ESCAP. *Comparative study on migration, urbanization and development in the ESCAP region—country reports II—Migration, urbanization and development in Sri Lanka.* Bangkok, 1980. p. 56.

[15] Gosling, L.A. Peter, and Hamid Abdullah. "Rural population redistribution." In: UNFPA. *Population redistribution: patterns, policies and prospects.* New York, 1979. p. 50.

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Table 4. Rural population, major areas and regions, 1950-2000

	1950	1960	1970	1975	1980	1990	2000
World total	1,776,924	1,973,733	2,255,816	2,406,771	2,567,042	2,857,409	3,045,956
More developed regions	405,502	402,396	383,894	369,606	355,013	325,258	294,700
Less developed regions	1,371,422	1,571,337	1,871,922	2,037,165	2,212,029	2,532,151	2,751,256
Africa	186,986	223,290	271,355	298,281	327,963	394,881	467,923
Latin America	96,411	108,982	120,670	125,728	131,042	142,283	153,695
Northern America	60,054	65,381	66,896	66,340	65,552	62,743	57,000
East Asia	562,008	593,246	661,713	697,437	728,292	757,036	747,621
South Asia	565,336	678,453	844,886	940,033	1,046,859	1,256,031	1,397,199
Europe	191,926	189,318	179,534	173,[illegible]3	167,229	154,551	141,548
Oceania	4,893	5,321	5,638	5,667	5,643	5,508	5,557
U.S.S.R.	109,310	109,742	105,124	99,722	94,462	84,376	75,413

Source: United Nations. *World population trends and policies: 1979 monitoring report, vol. 1.* New York, U.N. Department of International Economic and Social Affairs, 1980.

people overwhelmingly preferred to move to other rural areas. Only 3 per cent moved to urban areas.

Urban-to-rural migration. In addition to rural migrants, the rural growth rate is also supplemented in a small way by people coming from urban areas. In recent years, because urban centres could no longer absorb the growing number of migrants from other places, there has been a greater interest in the urban-to-rural population redistribution and the trend has recently started in India. This reverse migration has also come about because of slower rates of employment growth in the urban centres on the one hand and improved economic opportunities in rural areas on the other. A study of 14 villages in Java, Indonesia revealed that those who decided to return to their villages did so for the following reasons: (a) the village is the best place for retirement; (b) they have attained their target in the city; (c) family and friends live in the village; (d) they failed to earn a livelihood in the city; and (e) they disliked the city.[16]

In returning to the rural areas from the urban areas, migrants are practising what is called 'circular migration' which is characterized by temporary migration of rural residents to the cities for economic reasons. Return migration is unlikely to have a significant impact on population redistribution as a whole because of the small numbers involved. These migrants also maintain their rural residence and their return to the home village from a period of urban employment or urban education does not really represent a new shift of population from urban to rural areas.

International migration

United Nations data[17] show that at the global level the trend in long-term and permanent migration is towards stabilization or decline in the rate of movement into developed countries like the United States of America, Canada, the United Kingdom and Australia from developing countries. On the other hand, there is an increase of movement between developing countries especially into those of Northern Africa and Middle and Western South Asia. The predominant movement is from poorer to richer countries and especially to selected richer countries which are experiencing rapid economic growth. There is also a growing tendency to view the move as a temporary, rather than permanent settlement.

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[16] Hugo, Graeme J. "Indonesia: the impact of migration on villages in Java." In: Pryor, Robin, ed. *Migration and development in South-East Asia: a demographic perspective.* Kuala Lumpur, Oxford University Press, 1979. p. 205.

[17] All the data on international migration were derived from:

United Nations. Department of International Economic and Social Affairs. *World population trends and policies– 1979 monitoring report, vol. 1: Population trends.* New York, 1980. p. 112-122.

A rapidly changing regional focus of international migration at this time is from Asian countries to the set of oil-producing countries in Northern Africa and Middle and Western South Asia. The leading countries of labour immigration in Asia are Bahrain, Iran, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. The largest number of migrants is found in Saudi Arabia; about 1.5 million foreigners in 1975, mostly from India and Pakistan. It is also reported that half of the total population of Kuwait and over three-fourths of that of the United Arab Emirates are foreigners. Qatar has over 115,000 foreigners who make up nearly 70 per cent of the total population of whom more than half are from India and Pakistan. It is estimated that there are well over 70,000 foreigners in Oman; over half are from India and more than a third from Pakistan. From farther away, Bangladesh, the Philippines and the Republic of Korea and from outside Asia, Egypt, the United Kingdom, and the United States also provide migrant workers.

The 'brain drain', the movement of professionally and technically trained personnel from poorer to richer countries, is an important component of international migration. It was estimated in a study prepared by the United Nations Conference on Trade and Development (UNCTAD) that during the 1960s and early 1970s, 300,000 professional and technical personnel migrated from developing to developed countries. Some 230,000 of these went to the United States, the United Kingdom and Canada; the United States receiving 85 per cent. The leading countries of emigration have been in Asia, especially India and the Philippines. Nearly half the flow consists of engineers, physicians and surgeons, in about equal numbers.

Who migrate? (characteristics of migrants)

Demographic characteristics. Migrants in this region mostly tend to be young, in the age group 15-25 years, but most frequently in their twenties. Manila is one exception, attracting more in the 15-19 years age group. A survey of South-East Asia migration shows that at least 60 per cent of all migrants are under 30 years of age.[18] Most migrant streams are male dominant, especially in Nepal, Bangladesh, Indonesia, Singapore, Malaysia, and Pakistan. Notable exceptions are the Philippines, Thailand and the Republic of Korea where migrants are dominantly female. This can be traced to the massive increase of light, labour-intensive export manufacturing industries in the cities which employ mostly women and the attraction of service-oriented industries in urban areas.

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[18] Pryor, Robin, ed. *Migration and development in South-East Asia: a demographic perspective.* Kuala Lumpur, Oxford University Press, 1979. p. 324.

The sex imbalance in the rural-urban migration can be explained more clearly from the cultural and traditional norms and customs of the country. For instance, patterns of land inheritance operate in favour of eldest sons and in so doing disinherit younger sons who subsequently proceed to migrate. In many societies, especially in the sub-continental region, females are not encouraged to go to the urban areas because of the belief that girls should remain within their family home prior to marriage or that a girl's chances of making a good marriage arrangement are enhanced if she continues to reside with her parents. In many societies, there are also fewer employment opportunities for females in towns and cities, but the trend is changing in many Asian countries.

In South-East Asia slightly more than half the recent migrants to the metropolitan region are single, and the number of children in migrant households is smaller than in non-migrant households. The younger age distribution of migrants reinforced by exposure to different values and attitudes through mobility is the main explanation for the supposed smaller family size.

Educational characteristics. The rural-urban migration stream includes a large proportion of people who are better educated than their rural counter parts but generally less educated than the urban natives. One of the most consistent findings of rural-urban studies is the positive correlation between educational attainment and migration. The better educated have more knowledge of available opportunities and are thus among the first to migrate. This is true in the Philippines, Thailand and Indonesia.[19]

Economic characteristics. For many years, the largest percentage of internal migrants were those poor, landless, unskilled individuals who did not find any opportunities for employment in the rural areas. Recently, however, migrants from the rural areas have been financially secure enough to help them survive longer in the city while looking for a job. However the poor rural migrants still predominate in the overall stream, if only because most rural inhabitants are relatively poor.[20]

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[19] Mowat, Susanne. *Education and the urban migrant: a comparative analysis of case studies in Bangkok, Manila and Jakarta.* Bangkok, Unesco Regional Office for Education in Asia, 1977. p. 74.

[20] ESCAP. *Population of Bangladesh.* Bangkok, 1981. p. 34. (ESCAP country monograph series no. 8)

Occupational differentials and employment. The majority of migrants to urban areas are able to find employment and maintain a lower rate of unemployment than urban natives because they frequently accept jobs in the informal service sector, which the natives will not take. In the Republic of Korea for instance, a high proportion of out-migrants from rural areas are in the blue-collar jobs (males) and service categories (females). In Bangkok, over one-third of the migrants are found in the service categories; 60 per cent of whom are in the age range 11 to 24 years old with a large number of female migrants working as household servants. In Manila, more than half the migrants are engaged in some occupation, mostly concentrated in domestic and specialized services. It is surprising however to discover that many migrants in Manila hold better jobs at destination than native residents. These migrants are highly represented in professional and sales activities while the non-migrants are employed in crafts and production work.

Why do people migrate? (cause of migration)

The decision to migrate is never completely rational and not all persons who migrate reach that decision voluntarily. For instance, parents send their children to the city to supplement their village income. Children are taken along by their parents and wives by their husbands when migrating to other areas. Causes of migration have been explained and categorized differently by many authors.

According to Everett Lee, factors which enter the decision to migrate and the migration process can be summarized according to four general categories: (a) factors associated with the area of origin; (b) factors associated with the area of destination; (c) intervening obstacles; and (d) personal factors. According to this theory, every origin and destination area is assumed to have positive forces which hold people within the area or negative forces which repel or push people from the area. However, there are also other intervening obstacles which affect travel between all origin and destination points. Some intervening obstacles may provide only minor friction, such as distance from work and transport costs, while others may be insurmountable (restrictive immigration laws, quotas by race or national origin and physical controls over population movement).

Others categorize the causes into social, physical, demographic, cultural and communication factors which are mostly non-economic. Todaro[21] offered an economic theory of rural-urban migration. He proposed that migration is the result of the interplay between rural-urban wage differentials and urban employment. Other authors like Bogue, Sjaastad, Byerlee, Rothenberg and Wolpert discussed the causes of migration on a cost-benefit analysis framework.[22] They cite the public and private costs and returns of migration and relate the decision to migrate to a perception of whether costs are low enough and benefits are high enough (see Table 5). Dejong and Fawcett (1979) on the other hand, categorized causes of migration according to expected values of migration such as wealth, status, comfort, stimulation, autonomy, affiliation and morality.

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[21] Todaro, Michael P. *Internal migration in developing countries.* Geneva, International Labour Office, 1976. p. 17.

In the Asia and Pacific region, migration studies have categorized reasons for migrating according to the following:

1. **Economic factors.** Migration is a direct result of imbalances in economic development, social infrastructure and per capita growth in the economy. Accordingly, people migrate from less prosperous regions to the more prosperous ones with the prime objective of improving their economic well-being, more especially in pursuit of job opportunities. It is also caused by the growing density of the rural population and the incapacity of the land to withstand further subdivision or more intensive economic use.

Studies and surveys made in Indonesia, the Philippines and Thailand show that 60 to 70 per cent of migrants give economic and job-related reasons for moving to the city. Not only do migrants look for greater job opportunities but also greater opportunities in general such as better amenities in housing, sanitation, water supply, medical and educational services and most of all expanded horizons and experiences that are different from their seemingly static immediate environment.[23]

Economic activities in the place of origin also influence people to migrate to other areas. For instance, for most of human history, agriculture has been the predominant base of economic activity, but industrialization and modern economic development have drastically changed the patterns of population distribution. The growth of markets has given rise to an increasing proportion of the population being located in urban areas where industrial and economic activities function most effectively. In the agricultural community a number of problems, other than those already mentioned, have emerged to drive the people to the city. Land

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[22] Fuller, Theodore. "Rural-to-urban population redistribution," In: Gosling, Peter, et al, eds. *Population redistribution: patterns, policies and prospects.* New York, United Nations Fund for Population Activities, 1979. p. 27.

[23] Mowat, Susanne. *Op. cit.* p. 75.

Table 5. Cost-benefit mobility matrix

Decision	Potential costs	Potential benefits
Migrate	Transportation to new residence Uncertainty of finding employment Housing while seeking employment Food while seeking employment Clothing appropriate for employment Mistreatment by strangers Lack of social status Living in strange surroundings Need to use another language, improve speech Need to change customary dress, behaviour, daily habits	Higher rate of pay Employment of choice or preference Improved housing Better educational opportunities for children, self Better community service institutions More interesting, exciting social life Better race, ethnic, social conditions
	(Migration cost factors)	(Migration pull factors)
Not migrate	Difficulties of finding local employment Lack of appropriate local employment Excessive domination by family Unsatisfactory local social relations Unsatisfactory local institutions Unsatisfactory race, ethnic, political conditions	Inexpensive housing, already available Inexpensive food, recreation, living Daily contact with family Daily contact with old friends, peers Living in familiar surroundings Social status assured Convenience of continued use of traditional speech, dress, customs Assured employment (for some)
	(Migration cost factors)	(Migration pull factors)

Source: James Fawcett and Gordon de Song. *Reasons for moving and migration behaviour, for technical working group on migration and urbanization*, Bangkok, ESCAP, 1981.

tenure systems characterized by high tenancy and the presence of absentee landlords and ecological changes such as excessive salination of farmlands are just two.

2. **Education factors.** Education has also been cited as an important reason for rural-urban migration. People migrate to the cities to get further education for future employment. Studies have also shown that people with higher education in rural areas tend to have a greater tendency to move out. In Thailand, for instance, the better-educated migrant

moves for educational and other reasons rather than the strictly economic or personal reasons cited by the less educated migrants. Jakarta and Manila migration studies also showed that education was the next most important reason for moving after economic reasons.[24]

3. **Socio-cultural factors.** People who feel restricted by social or cultural practices are forced to other places to escape. The presence of relatives and friends in the urban areas has also been cited as contributing to rural-urban migration. The 'kinship chain' provides the prospective migrant with security and a knowledge of the labour market. The city also offers them an opportunity for a greater range of entertainment and cultural pursuits or the chances for increased social interaction.[25]

4. **Political factors.** Groups of people migrate due to civil wars and rebellions, breakdown of peace and order, ideological conflicts and activists' movements. Some of these factors are being experienced in Thailand, the Philippines, Democratic Kampuchea and the Socialist Republic of Viet Nam.

Reason for rural to rural migration. Like migration to urban areas, the main motivation for rural to rural migration is the direct improvement of economic status. Migrants move in search of better land and more compatible living situations in other rural locations. There are also other motives, including improved security and escape from family, societal or political pressure. Some express strong feelings for the value of rural life: 'It is better to be poor in the country than poor in the city'. Migrants move to the frontier areas where underdeveloped land is available, and to better developed and more productive areas where they purchase operating farms. Therefore, rural migrants are both pioneers and upwardly mobile farmers, sometimes moving by stages to an ultimately urban destination. This is exemplified in migration from urban and rural areas to Mindanao areas in the Philippines where arable land and natural resources are plentiful.

Effects of migration on areas of out-migration

Manpower. A negative factor in rural migration is that it deprives villages of the ablest and the best people. Migrants to urban areas are young adults who are in their prime years of economic productivity, more educated, more responsive to change and have more developed skills. Their migration constitutes an outflow of human capital; the educational investment made in these individuals is a loss to the community.

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[24] Mowat, Susanne. *Op. cit.* p. 74.

[25] *Ibid.* p. 38.

The positive aspect in this case however is that labourers who are left behind will have higher wages and those unemployed will have more opportunities to become employed. Migration out of the area serves to raise average wages and per capita income only if: (a) redundant labour is removed; (b) if the remaining workers intensify their efforts; and (c) technological changes are introduced to improve upon changes in the labour conditions.[26]

Population size and fertility. Another important effect of migration on areas of out-migration involves population size and the fertility rate. Areas of out-migration, by definition, experience net losses of population through migration. But this does not necessarily imply actual population declines. It is possible that people lost through migration may be replaced, especially if cyclical or reverse migration is involved. In this case, although rural male labourers migrate to urban areas, wives remain in the rural areas and continue childbearing.

Migration, however, may serve to stabilize the size of population if migrants are recruited from the ages of highest fertility. This is already happening as most female migrants are in their prime childbearing years. In addition, sending them to urban areas will expose them more to family planning information which might actually make them reduce their fertility. The net effect of out-migration on fertility depends on the number and age of people who leave and those who are left behind, and whether migration is permanent, temporary or cyclical.

Remittances. A third factor considered almost universally as having positive effects on rural areas is the remittance of money and goods earned by migrants in the city to the family members and relatives who remain in the village. A study of the impact of migration on 14 villages of Java reveals that 95 per cent of all surveyed permanent migrants who were in the workforce remitted money to the village.[27] In the whole of Asia, migrants generally send home about 20 to 50 per cent of their income. It was also found that the average annual household income of persons who have some members working in urban areas was greater than those for 'stayer' households. The major use to which remittances are put is the purchase of the basic daily necessities such as food, clothes and household effects; building a house and expenditure for ceremonies such as marriage, circumcision and religious celebrations. Because of the poverty in rural areas there is nothing left from the remittances to invest in rural improvement schemes.

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[26] Fuller, Theodore. *Op. cit.* p. 31.

[27] Hugo, Graeme J. "The impact of migration on villages in Java." In Pryor, Robin, ed. *Migration and development in South-East Asia: a demographic perspective.* Kuala Lumpur, Oxford University Press, 1979. p. 207.

Modernization. The constant flow of migrants to and from the villages also means that there is a continuous interpersonal direct exchange of information between migrant and non-migrant villagers. This enables them to transmit goods, ideas, attitudes and innovations from their destination.[28]

Effects of migration on areas of destination

Economic and employment impact. Migrants have lower rates of unemployment than native urbanites. Many migrants indicate that their urban working conditions, income levels and housing are better than those they left behind in the rural areas. However, massive in-migration worsens any unemployment situation already existing in urban areas. Native urbanites are eased out of some jobs because migrants are willing to work at anything and receive lower levels of pay.

Labour surpluses are likely to depress the wages of the poorest workers already there because most possess few skills and would compete in the market for basically unskilled, usually unprotected labour.[29] For example, industrial wages in India or Pakistan for the unskilled are only fractionally higher than wages of farm workers. On the other hand, rapid growth of the economy implies an increased demand for higher skilled manpower and consequent increases in the wages of those with skills. Rapid urbanization and income growth is thus likely to increase the income disparities within urban areas.

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[28] *Ibid.* p. 209.

[29] *Population Bulletin.* Issue on: *Can third world cities cope?* Vol. 31, no. 4, 1976. p. 14.

Projections by the International Labour Organization indicate that during the period 1970-2000, developing countries must attempt to create 922 million jobs, nearly double the number of jobs that exist today.

Social services. Migration has also strained existing urban services. Slums and squatter settlements spring up as a result of the accelerating rural-ruban migration and city growth. In Asia there are seven cities with squatter populations exceeding one million inhabitants. Three of these cities are found in India. In South-East Asia, the five countries with the highest percentage of slum and squatter areas are: Indonesia (26 per cent); Malaysia (37 per cent); Philippines (35 per cent); Singapore (15 per cent) and Thailand (5.5 per cent).[30] At present some of the older squatter communities occupy valuable central sites like Tondo in Manila and Klong Toey in Bangkok, occupying land required for industrial or port extensions and therefore impeding necessary redevelopment. Examples of typical living conditions found in squatter areas are those gathered from a Klong Toey survey. Living conditions in the squatter settlement are poor. The houses stand over stagnant, swampy water which is the main recipient for all sewage and rubbish; there are about five or six people to each dwelling; only 3 per cent of the houses have direct access to any water supply; electricity has to be tapped illegally; and almost one-third of the eligible children do not attend school. Similar conditions apply in squatter communities elsewhere.

The increasing number of migrants also place increasing pressure on urban water supply systems. The rapid urbanization of Seoul for instance, has stimulated a remarkable increase in water requirements. In 1970, the water supply systems served about 35.5 per cent of the total population with an average of 175 litres per day. Because of massive in-migration and modernization of the mode of life which includes having flush toilets, heating and cooling systems, washing machines and heavy industries, Seoul needs about 250 litres of water per person per day. In the meantime there is an absolute water shortage for both domestic and industrial consumption.[31] In Japan, where similar problems exist, urban population expansion in Tokyo, Osaka and Nagoya is controlled by establishing optimum limits for the cities.[32] The limits are determined on the basis mainly of land space and water resources.

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[30] Drakakis-Smith, David. "Development planning: urban planning–the challenge of an alternative urbanism in South-East Asia." In Pryor, Robin, ed. *Migration and development in South-East Asia: a demographic perspective.* Kuala Lumpur, Oxford University Press, 1979. p. 207.

[31] Woon Tai Kim. "The need to regulate migration." In: International Christian University. Social Science Research Institute, ed. *Asia urbanizing: population growth and concentration and the problems thereof.* Tokyo, Simul Press, 1976. p. 37.

Providing mass transport at reasonable cost is becoming a major service problem. As cities grow, journeys to work take longer. The cost of these journeys becomes prohibitive for the very poor who, as land prices rise, cannot afford to locate themselves near the centre. This places them at a locational disadvantage *vis-a-vis* job opportunities. Even the cost of the cheapest form of mass transit cuts deeply into a poor person's wage.

In crowded, unsanitary urban areas where contaminated water supplies are often unsuited to the needs of the urban masses, diseases and other health threats arise.[33] The strong urban bias in allocation of resources is very evident in developing countries. It is not uncommon for a country with 70 per cent of its population in rural areas to allocate them only 20 per cent of its public sector investment. Thus, public funds are invested in roads for the cars of the rich and universities for their offspring. Piped water, electricity, sewage and transportation costs remain beyond the reach of the poor. The less urgent medical needs of the city take priority over the more urgent medical needs of the village.

Education should also be a priority service for the poor. No single service offers such good prospects for prevention of inherited poverty as education. A study of squatter settlements in Manila shows that almost a third of school age youths have dropped out before completing high school. While Sampaloc and Tondo (where slums and squatter settlements are located) contain the largest number of public schools in Manila, almost 60 per cent of out-of-school youth reside in these districts. Most children drop out of school for financial reasons.

Politics and peace and order. Poor households also suffer serious political disadvantages in less developed countries. They are rarely represented in formal political institutions. In Seoul, government policymakers have openly expressed a growing concern for rapid population growth with respect to national security and military defence. Rising urban unemployment will possibly lead to social unrest and political instability. The growing pockets of urban squatters are also viewed as a potential source of social unrest and political disturbance, which are potentially hazardous to national consolidation.[34] The growing number of crimes and violence in the cities also cannot be ignored. In Bangkok for instance, it was found that the majority of crimes in the city were committed by in-migrants.

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[32] Ichinose, Tomoji. "The limits to urban growth." In: International Christian University. Social Science Research Institute, ed. *Asia urbanizing: population growth and concentration and the problems thereof.* Tokyo, Simul Press, 1976. p. 145.

[33] Hollansteiner, Mary, and Maris Elena Lopez. "Manila: the face of poverty." In: International Christian University. Social Science Research Institute, ed. *Asia urbanizing: population growth and concentration and the problems thereof.* Tokyo, Simul Press, 1976. p. 79.

Consequences for population growth. Evidence from India indicates that urbanization has had only a slight impact upon birth rates there, but this is not the case elsewhere. Data for Malaysia, the Republic of Korea, Sri Lanka and Thailand show that, in these countries, urban birth rates are lower than rural birth rates and that completed family sizes are generally smaller. The reasons given for this vary from cramped housing conditions, lack of extended family relationships to provide help in child-rearing, and lack of economic security, to improved communications and greater awareness and availability of family planning services, the need for wives to work to augment income, and the acceptance of an urban value system which places greater emphasis upon material goods and possessions. It is quite possible that all of the factors mentioned contribute to the lower urban birth rates.[35]

Impact on rural destination. Unchecked and unmanaged population redistribution within rural areas may pose greater problems than those of over-urbanization if the rural population expands into forest reserves, river watersheds or dry land margins. In Thailand for instance, minority tribes, who are basically nomadic, endanger critical watersheds. Such groups normally employ a 'slash and burn' agriculture, where they progressively destroy stands of virgin forests.[36] While most of the ills of over-urbanization are capable of reversal or solution, the consequences of ecological disaster may be irreversible and insoluble.

Strategies for population redistribution

Many policies for redistributing population have failed because they were developed in isolation from other development processes and programmes. The design of more effective migration policies and programmes depends on an effective interrelationship between population mobility and other development processes. Internal migration policies have been classified into those having a direct effect on population redistribution (resettling people or controlling movements to the city) and those having only an indirect influence while attempting to achieve other goals (rural housing programmes, agricultural diversification).

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34. *Ibid.* p. 80.

35. Unesco. ***Population education in Asia: a source book, booklet 3: Population growth and distribution in the Asian region.*** Bangkok, 1975. p. 8.

36. Gosling, Peter, et al., eds. *Op. cit.* p. 50.

Most Asian countries have policies that actively intervene in the flow of people between rural and urban areas.

Rural development. This programme is aimed at stopping the movement of migrants to the cities by encouraging people to stay on the farms. To achieve this, projects have been introduced which contribute to the enhancement of economic opportunities in rural areas, the improvement of agricultural productivity and socio-economic status as well as the provision of social services and amenities in the villages. Efforts to increase agricultural productivity are achieved through the introduction of modern farming and marketing techniques. This is already happening in Thailand, Malaysia, Indonesia and the Philippines.[37] There are also programmes to accelerate land development and ownership, to implement land or agrarian reform, establish village credit schemes and co-operatives and to provide rural people with adequate social services and amenities. Projects are implemented to increase potable water supplies and rural electrification and to expand the public health centres and nutrition programmes, medical care, and transportation and feeder roads.

Preliminary evaluation of integrated rural development schemes suggests a number of problems. One is that insufficient road and market facilities continue to hamper the proper marketing of agricultural products. More efficient agriculture tends to rely on capital-intensive technologies that sooner or later displace labour. Lastly, rural areas have such high population growth rates that the pressure of too many people wanting too little land continues unabated.[38]

Movement from depressed areas to areas of greater potential. Resettlement, colonization and transmigration schemes require programmes that move people from lagging regions with a labour surplus to regions with expanding economies. This involves a direct redistribution goal, improved matching of population resources and economic opportunities, the alleviation of unemployment and a more efficient use of manpower.[39]

Examples of this strategy are found in Sri Lanka where about 70 per cent of the people are concentrated on about 30 per cent of the country's wet zone. A massive colonization scheme to transfer part of the population to the country's dry zone was launched. Similar programmes of resettlement are: (a) the *transmigrasi* scheme of Indonesia which is designed to decongest densely populated Java and Bali by sending people to the outer islands; (b) the capital-intensive programme in Malaysia popularly called the Federal Land Development Authority (FELDA); (c) improvement of hilltribe resettlement for 1,000 families in Thailand; (d) the resettlement programmes in Mindanao and the Tondo urban resettlement in the Philippines; and (e) the colonization scheme and forest encroachers control programme in the terai region of Nepal.

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[37] Pryor, Robin, ed. "Development planning: population redistribution policies and South-East Asian development plans." In: *Migration and development in South-East Asia: a demographic perspective.* Kuala Lumpur, Oxford University Press, 1979. p. 281.

[38] Laquian, Aprodicio A. *Op. cit.* p. 39.

[39] Demko, George G., and Roland J. Fuchs. "Population redistribution: problems and policies," *Populi,* Vol. 7, no. 4, 1980. p. 33.

The record of sponsored land settlement schemes is mixed, with failures outnumbering successes. Despite the attention given to planned schemes, the spontaneous settlement of new or frontier lands accounts for 75 per cent of all new rural land settlement globally. The results of Indonesia's transmigration programme show that when governments try to accomplish their goals by doing things cheaply, the failure rate is high. The expensive Malaysian FELDA scheme which resettled 3 per cent of the current rural population to economically viable new communities is widely considered a successful land colonization programme.[40]

Establishment of growth centres and new cities. The objective of strategies to promote the growth of intermediate-sized cities is to provide a counter attraction for potential migrants to large cities. These programmes rechannel migrants to rapidly growing centres such as industrial estates, export processing zones and tax free production sites. They are accompanied by industrial decentralization to channel-off economic expansion toward these centres. They are also seen as serving a regional development function since they also affect the improvement of surrounding areas. Administrative decentralization and relocation of government offices or workshops has frequently formed part of this policy because of the multiplier effect on employment.

Examples of the development of growth centres are: (a) the industrial estates projects in India and Pakistan; (b) the industrial parks concept in the Republic of Korea; (c) the setting up of export processing zones in the Philippines and Sri Lanka; (d) the planning of new towns in Malaysia; and (e) decentralized industry around KhonKaen and new satellite towns around Bangkok in Thailand.

Because growth centres are usually within the zone of influence of large cities, they fail to attract the skilled labour, utilities or government services. Also, most industrial estates use more machines than labour thus limiting the opportunities for the masses of unskilled who make up the waves of rural-urban migrants. Consequently there has been little of the expected population redistribution.[41]

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[40] Demko, George G. et al., eds. *Op. cit.* p. 34.

Closed city programmes and setting up control systems. The massive stream of migrants to urban areas has forced some governments to adopt desperate measures such as closing the gates of the city to them. This is done by imposing administrative and legal controls such as requiring migrants to have identity cards or internal passports, issuing permits to existing residents and enforcing the compulsory registration of residents with civil authorities. Other measures sometimes taken are the destruction of squatter housing, forced eviction or periodic deportation and denial to illegal immigrants of access to public services. Closed city programmes have been attempted in a number of developing nations including Indonesia and the People's Republic of China.[42]

These policies have rarely worked because people are able to escape administrative means to control their movements. In-migrants may simply settle in the peripheries of the metropolitan areas. Internal passport systems are also inadequate in enforcing migration control, especially if the bureaucracy is inefficient or corrupt.[43]

Urban development and other accommodationist policies. Urban development and similar policies accept the existing patterns of population redistribution and merely accommodate the millions of migrants that are already in the cities and acknowledge the fact that something has to be done to improve their plight. Most of these policies are focused on providing services, amenities and jobs for people where they already live. In addition to urban renewal, other accommodationist measures are: (a) recognition and legitimation of tenure of migrant squatters and slum dwellers; (b) setting up reception centres for migrants; (c) upgrading slum and squatter communities; (d) sites and services projects; and (e) employment opportunities for migrants and urban poor.[44]

Tenure legitimization has generally had positive effects. Upgrading existing slums or squatter communities, since it uses existing dwellings, may be the most economical approach since it can also preserve intact existing forms of community organization. Furthermore, assuring squatters of tenure encourages them to improve their dwellings and their environment. Attempts at developing formalized reception centres as transient settlements in the Philippines, India and other countries, on the other hand, have generally failed. Experiences have shown that there are still unresolved problems like affordability, appropriate locations, management needs, flexibility and responsiveness required by the big number of migrants seeking their services. The migrants still consider the slums and squatter communities as the best reception centres in that they act as accommodation and transition points in the migrant's process of adjusting to city life. Upgrading slum and squatter settlements precludes as much as possible the demolition of houses and although relocation is required, the site is usually not far from the original location. In this way, the employment and journey to work patterns are not altered drastically. It also involves the extension of basic services such as water, toilet, paths and alleys, garbage collection and schools.

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[41] Laquian, Aprodicio A. *Op. cit.* p. 44.

[42] *Ibid.* p. 45.

[43] Demgo, George G. et al., *Op. cit.* p. 31.

[44] Laquian, Aprodicio A. *Op. cit.* p. 45.

The *kampong* improvement scheme in Indonesia or the Tondo foreshore redevelopment scheme in the Philippines have shown that as soon as the people are assured that the government will not pull down their houses, they organize co-operative activities to develop their communities. Sites and services programmes provide a serviced site (a plot of land with water, drainage and sewerage connection) or finished housing. Many sites and services projects are expensive but they are the best compromise between the low ability of poor urbanites to pay and the need to build strong houses. To date, the World Bank has already launched 20 sites and services projects all over the world.

Examples of this strategy in Asia include the sites and services projects in the Philippines, India and Thailand; squatter upgrading; the *kampong* improvement programmes in the Philippines, Indonesia and Sri Lanka; the provision and encouragement of informal sector job opportunities in Malaysia and informal transport improvement programmes in Indonesia, the Philippines and Thailand.[45]

Conclusion

Although there are arguments forwarded suggesting positive aspects of migration and the fact that its proportion of contribution to urbanization is declining, its scale is so massive that the carrying capacity of urban areas is bursting at the seams. As a result, migrants are faced with a variety of problems which affect their quality of life. Yet people still move; motivated by all sorts of reasons. Problems of population maldistribution are widespread in developing countries but are evidently not susceptible to simple solutions.

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45. Laquian, Aprodicio A. et al. *Effectiveness of population redistribution policies: cases from South and South-East Asia.* Manila, De La Salle University, p. 8.

A number of countries have pursued comprehensive policies that seek to influence and alter migration streams so that they do not all end up in the largest urban areas. One of the policies, requiring more serious attention, is the education of the people, both migrants and non-migrants, with regard to the phenomenon of migration. It has been observed that the kind of education typically received by students, especially among the rural youth, contributes to migration. The 'hidden content' in the curricula of schools suggests to students that if they want to be successful and attain their ambitions, they have to get out of the villages and go to the cities partly because 'white collar' jobs are projected as being more prestigious than physical work in the village. Education has put so much emphasis on materialism and status symbols which are all derived from the cities that the values of the youth have become urban oriented. One possibility for rectifying this situation is the development of curricular units exemplifying the concepts and facts of migration. This type of education can help people make rational decisions about migration. A clear model for this type of educational strategy is provided in the rationale, theories and principles underlying recent conceptualizations of population education.

An article written by Arthur Haupt in *Intercom* of the Population Reference Bureau provides an interesting scenario of the type of migration that may occur in the future.[46] The first two paragraphs are reprinted here:

> In the 21st century, thousands, and perhaps millions of people may be living in outer space, as satellite farms, factories, and power stations become an increasingly important part of the human economy—on and off the earth.
>
> Such is the vision of a number of scientists who see such colonies as a possible solution to many earthly problems. Even the usually discredited notion of relieving population pressures by migration into space has been cautiously revived, though Earth's population presently increases by 200,000 a day.

Other scientists are more sceptical about the new space boomlet. In the words of physicist Louis Alvarez of Berkeley, 'we can't keep up with the rate of population growth on Earth, so what makes you think you can keep up with it by shooting people into space? '

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[46] Haupt, Arthur. *Births, deaths and population changes of the third kind: migration to outer space.*

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

POPULATION CHANGE AND SOME ASPECTS OF SOCIO-ECONOMIC DEVELOPMENT

Population change and socio-economic development are interactive variables. Paradoxically, population growth can, in some ways, stimulate economic development and in some ways retard it. This section of the Bulletin examines some of the major dimensions of the interrelationship of population dynamics and socio-economic development in the context of Asia and the Pacific.

Population growth can stimulate economic progress, in that 'such growth increases the demand for goods and services; and increased demand may lead, for example, to increased investments in agriculture and industry and the development of infrastructures such as roads and communication systems.[1] It has been shown that population growth in the least developed countries has a very strong positive effect on the creation of infrastructure such as roads, which in turn increase total food production and average income.

In Thailand, partially used jungle land was transformed into highly productive, prosperous farms along the hundred-mile course of the Friendship Highway. Travel time was reduced from 11 hours on the old road to three on the new. The production of sugarcane, vegetables, bananas, and other fruit more than tripled in three years and Thailand began to export corn crops to Japan.[2]

Likewise, population growth, *inter alia,* led to the settlement of the vast virgin land in the hinterlands of Mindanao in the Southern Philippines. The construction of roads and bridges in the area led to increased production of the export crops—coconut, sugar, abaca and bananas.

In general, wherever population growth is planned *vis-a-vis* available resources, a positive impact may be expected. On the other hand, unplanned population growth invariably has a negative impact on development. Rapid population growth tends to delimit further the resources available to people, so much so that one economist has referred to population growth as one of the intensifiers of underdevelopment.[3]

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[1] Unesco. Regional Office for Education in Asia. *Population education in Asia: a source book, Booklet 4,* Bangkok, 1975. p. 114.

[2] Simon, Julian L. *The economics of population growth.* Princeton, New Jersey, Princeton University Press, 1977. p. 264.

Since most of the countries in the region are developing (in fact a few belong to the category known as the least developed), rapid population growth is seen more as an obstacle to development rather than as a stimulant to economic progress. This aspect of the interrelationship of population change and socio-economic development will be elaborated on in the succeeding sub-section.

Economic development in the region: current status

What is the status of economic development in the Asia and Pacific region? In order to answer this question, it is necessary to clarify the concept of economic development, as well as the standard measures of economic progress.

A definition of economic development used in an earlier Unesco publication is adopted as an analytical and conceptual tool for this paper. It reads as follows:

> Economic development is, in general, a process that draws a greater proportion of the people into more productive and often different activities. Raising the overall productivity or output of the population is one key to economic development; and this output in terms of goods and services, must rise faster than population increase if individual well-being is to improve.[4]

For purposes of measuring the output, Gross National Product (GNP) or Gross Domestic Product (GDP) are used. GNP is the sum of all the wealth (the value of all the final goods and services) produced by a nation in a particular year. 'GDP, unlike the GNP, excludes income emanating from outside the national boundaries; the difference between the two is negligible for the purposes of this paper.'[5] GNP divided by the total population gives the per capita ratio–the wealth per person of the population in a nation.

The 1980 World Bank atlas gives the population, GNP, GNP per capita and average annual growth rate for 1978 and 1979 in all countries. Those for Asia and the Pacific have been singled out and presented in Table 1.

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[3] Todaro, Michael P. *Economic development in the third world.* London, Longman, 1977, p. 138.

[4] Unesco. Regional Office for Education in Asia. *Population education in Asia: a source book, Booklet 4.* Bangkok, 1975, p. 114.

[5] *Ibid*

Table 1. Population (mid-1978 and mid-1979), GNP at market prices (1978 and 1979) GNP per capita (1978 and 1979), and Average Annual Growth Rate (1970-78)

GNP at market prices rounded to US $ tens of millions — GNP per capita rounded to nearest US $ 10

Country or area	Population (thousands)		GNP at market prices (US $ millions)		GNP per capita (US $)		Growth rate (%)	
	mid-1978	mid-1979(P)	1978	1979(P)	1978	1979(P)	Population 1970-78	GNP per capita (real) 1970-78
EAST ASIA								
China	952,223	965,279	219,000	n.a.	230	n.a.	1.6	n.a.
Hong Kong	4,606	4,671	15,400	18,690	3,340	4,000	2.0	6.9
Japan	114,898	115,835	884,500	1,019,480	7,700	8,800	1.2	7.8
Mongolia	1,576	1,622	1,100	1,270	700	780	3.0	3.1
Republic of Korea	36,648	37,265	48,000	55,930	1,310	1,500	2.0	8.1
EASTERN SOUTH ASIA								
Brunei	200	210	1,840	2,240	9,220	10,680	5.7	4.9
Burma	32,205	32,986	4,480	5,140	140	160	2.2	1.7
Democratic Kampuchea	8,559	n.a.	n.a.	n.a.	n.a.	n.a.	2.5	n.a.
Indonesia	135,993	138,891	45,780	52,200	340	380	1.8	5.3
Lao People's Democratic Republic	3,280	3,353	n.a.	n.a.	n.a.	n.a.	2.5	n.a.
Malaysia	13,300	13,642	15,270	17,960	1,150	1,320	2.7	4.8
Philippines	45,639	46,803	24,410	28,110	530	600	2.7	3.7
Singapore	2,334	2,368	7,600	9,050	3,260	3,820	1.5	6.6
Thailand	44,517	45,486	23,390	26,920	530	590	2.8	4.5

Country or area	Population (thousands) mid-1978	Population (thousands) mid-1979(P)	GNP at market prices (US $ millions) 1978	GNP at market prices (US $ millions) 1979(P)	GNP per capita (US $) 1978	GNP per capita (US $) 1979(P)	Growth rate (%) Population 1970–78	Growth rate (%) GNP per capita (real) 1970–78
Viet Nam	51,742	n.a.	n.a.	n.a.	n.a.	n.a.	3.1	n.a.
MIDDLE SOUTH ASIA								
Afghanistan	14,616	15,011	2,290	2,590	160	170	2.2	2.7
Bangladesh	84,655	86,961	7,280	8,320	90	100	2.8	0.2
Bhutan	1,240	1,267	90	110	80	80	2.2	0.2
India	643,896	658,337	117,520	125,990	180	190	2.0	1.6
Iran	35,831	n.a.	n.a.	n.a.	n.a.	n.a.	3.0	n.a.
Maldives	145	149	30	30	170	200	4.0	2.1
Nepal	13,625	13,947	1,580	1,790	120	130	2.3	0.3
Pakistan	76,078	78,527	18,250	20,990	240	270	2.9	1.5
Sri Lanka	14,346	14,639	2,870	3,410	200	230	1.7	1.9
OCEANIA								
Australia	14,249	14,365	114,780	130,670	8,060	9,100	1.6	1.5
Cook Islands								
Fiji	607	618	900	1,040	1,490	1,690	2.0	3.1
Kiribati	56	57	50	40	830	670	1.6	4.4
Nauru								
New Zealand	3,201	3,232	17,700	19,190	5,530	5,940	1.7	0.9
Niue								
Papua New Guinea	2,927	3,000	1,820	1,940	620	650	2.4	0.2
Samoa, American	32	33	240	260	7,400	8,030	2.1	7.0

Country of area	Population (thousands)		GNP at market prices (US $ millions)		GNP per capita (US $)		Growth rate (%)	
	mid-1978	mid-1979(P)	1978	1979(P)	1978	1979(P)	Population 1970-78	GNP per capita (real) 1970-78
Samoa Western	154	158	n.a.	n.a.	n.a.	n.a.	1.3	n.a.
Solomon Islands	213	219	n.a.	n.a.	n.a.	n.a.	3.5	n.a.
Tonga	94	96	40	40	400	460	1.3	1.2
U.S. Trust Territory of the Pacific Islands	132	135	160	180	1,230	1,340	3.3	1.5
Vanuatu	103	105	50	60	530	590	2.6	1.9

n.a. = not available

(P) = projected

Source: 1980 World Bank Atlas. Rearranged.

Table 1 shows that there are at least ten countries in the region whose per capita income is less than US $300, namely: Afghanistan, Bangladesh, Bhutan, Burma, China, India, Maldives, Nepal, Pakistan and Sri Lanka and that in 1979 they had an estimated combined population of 1,867,103,000 or about 77 per cent of the population of the region. The number of countries or areas and the total population involved would be more if demographic data were available from Kampuchea, Laos, Viet Nam, Cook Islands, Nauru, Niue, Western Samoa and the Solomon Islands.

Social development

Per capita GNP, however, masks the real economic condition of the people as it does not show the actual distribution of income and wealth. In most non-socialist countries there is in fact maldistribution of income and wealth. This economic reality is illustrated by an International Labour Organisation (ILO) report, part of which is shown in Table 2.

Table 2. Income shares of decile groups

Country and year	Entire economy		Rural areas	
	Poorest 40%	Richest 20%	Poorest 40%	Richest 20%
Bangladesh (1963/64)	18.0	44.5	18.5	43.0
India (1963-65)	16.0	52.0	20.0	42.0
Malaysia (1970)	11.6	56.0	12.4	45.7
Pakistan (1963/64)	17.5	45.4	18.0	43.0
Philippines (1971)	11.6	53.8	13.3	51.0
Sri Lanka (1973)	15.1	45.9	17.0	42.7

The ILO report also points out that during 1963-1973 in Bangladesh, India, Malaysia, Pakistan, the Philippines and Sri Lanka, 'the richest 20 per cent of households receive about half the income, whereas the poorest 40 per cent receive between 12 to 18 per cent of total income.[6] In short, there could be economic development but not social development, such as equitable distribution of wealth and income.

Studies have shown that equitable income distribution exerts a far greater influence on fertility than the GNP. For example, Cuba has a per capita GNP less than half that of Mexico, but because it has a more equitable income distribution its birth-rate is 15 per thousand as against Mexico's 33 per thousand in 1981. In the Republic of Korea and Sri Lanka, and the State of Kerala in India, it was found that equitable distribution of income is one of the main factors behind low fertility rates.

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[6] ILO. *Poverty and landlessness in rural Asia.* Geneva, 1977, p. 19-20.

Studies of the Population Council[7] and the World Bank[8] show a direct relationship between fertility trends and income inequality; that is, in countries where income inequality prevails, a decline in fertility is hard to come by. Perhaps a more significant finding in this regard is that fertility declines are much more sensitive to increases in income among the poorer segments of the population. A World Bank study shows that '. . . each additional percentage point of income received by the lowest 40 per cent (of the population) is associated with a reduction of 2.9 points in the general fertility.'[9]

It appears that increasing GNP and per capita GNP should not be the end-goal of socio-economic development. The social development component is crucial if the greatest number of people are to maximize their legitimate right to share in the enjoyment of the outcome of development efforts. Social development, including equitable distribution of income and subsequently the wealth of the nation, appears to be a crucial link in the lowering of fertility rates. A lower fertility rate in turn contributes to the enhancement of economic development at the family, community and national level especially in societies or countries where natural resources are extremely limited.

Poverty in the region

Poverty is a reality, not fiction, in many countries of the region. The World Bank estimates that half of the people in absolute poverty live in South Asia, mainly India and Bangladesh. A sixth live in East and South Asia, mainly Indonesia.[10] In another World Bank publication, it is pointed out that developing countries are like long distance runners. In their race against time to eliminate poverty, rapid population growth is an additional burden which, regardless of their inherent strengths, slows them down. Moreover, a quick glance at the race suggests it is an unfair one. The weaker runners are those advancing most slowly and already behind the pack; they also have the highest population rates, and are thus the most severely handicapped. Bangladesh, Bhutan, India, Nepal and Pakistan are among the countries that seem to be experiencing this race against poverty as borne out by Table 3. It is to be noted that for these five countries the rate of population growth is quite high and their GNP per capita is not only very low but moving at a snail's pace.

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[7] Kocher, J.E. *Rural development, income distribution and fertility decline.* New York, Key Book Service, 1973. (Population Council Occasional paper).

[8] World Bank. *Population policies and economic development.* Baltimore, John Hopkins University Press, 1974.

[9] *Ibid.*

[10] World Bank. *World development report, 1980.* Washington, D.C. 1980, p. 35.

Table 3. Rate of population growth compared with GNP per capita

Country	GNP per capita (1979) US $	Growth rate (1970-78)	
		Population	GNP per capita
Bangladesh	100	2.8	0.2
Bhutan	80	2.2	0.2
India	190	2.0	1.6
Nepal	130	2.3	0.3
Pakistan	270	2.9	1.5

Table 4 uses data from Table 1 to show the relationship between population growth on the the one hand and GNP per capita as well as the rate of growth on the other.

Table 4. Per capita income, rate of growth of population and per capita GNP for country groups, Asia and the Pacific

Per capita income of countries in the region	No. of countries	Average GNP per capita US $	Average annual rate of population growth (1970-78)	Average rate of growth GNP per capita 1970-78
Less than $349	10	171.76	2.475	0.917
$350 - 749	7	562.85	2.17	3.02
$750 - 1,999	3*	1,263.33	2.56	3.125
$2,000 and above	6**	6,615	1.68	5.11

Note : * Except TTPI
** Except Brunei

It appears from the above table that there is truth in the saying that poverty breeds poverty, and at the same time it breeds poverty's twin--rapid population growth.[11] In the ten countries in the region with GNP per capita below US $349 the average rate of growth of GNP per capita is 0.917 per cent per annum. This is probably partly because of the relatively higher average rate of population growth of 2.475 per cent per annum. One cannot, however, reach a definite conclusion in this regard as the rate of population growth is only one of the factors affecting development.

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[11] U.N. Department of International Economic and Social Affairs. *Concise report on the world population situation in 1979: conditions, trends, prospects, policies.* New York, 1980. p. 62.

It is very unfortunate that among the very poor, poverty is often regarded as the *cause* rather than the effect of high fertility. An Indian Scientist, Amulya Kuman N. Reddy showed that, 'The family of a landless Indian peasant now spends about six hours a day merely finding the firewood it needs for cooking and heating. Another four to six hours are spent bringing water from a well, and a similar amount to graze cattle, goats or sheep.'[12] Somebody must also be available to take care of the siblings while father and mother work on the farm. With frequent births, women cannot participate in productive work. Even the children's work contributes mainly towards the survival of the family rather than the enhancement of the economic status of the family.

Among farmers in non-irrigated areas, who constitute the majority of those living in poverty, having many children is their response to the tyranny of the tropical weather over which they have no control. Paul Harrison describes the tropical weather as '. . . never moderate, always extreme. Too much rain or too little. Too much heat.'[13] When the rain comes the poor farmer needs all the labour that he can muster during peak periods in preparing the field, planting, weeding and harvesting. Mandani says that, 'In these periods, it is impossible for the farmer to rely on hired labourers; he must rely on the family itself. They rely on their family and hope that they will better their situation by having a large family, accumulating some savings and getting more land.'[14] Sad to say, it does not always happen that way. Many have discovered like Alice in *Through the looking-glass,* that they have to run very fast to stay in the same place.

Moreover, among the very poor; mortality, especially infant mortality, tends to be high. Population theory holds that a decline in mortality results in a decline in fertility. The poor are prone to be both malnourished and undernourished. Studies have shown that in areas where malnutrition is widespread, infectious diseases are the major cause of death among children under five years.[15] Studies have also shown that diarrhoea and respiratory infections are more frequent, longer-lasting, and cause more deaths in the poor and the malnourished regardless of the medical care available.[16] Indeed, rapid and unplanned population growth tends to aggravate poverty in developing countries resulting in an increase in the number of malnourished and sick people. Hence, slowing down population growth is becoming a shared goal among more and more developing countries.

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[12] Toffler, Alvin. *The third wave.* London, William Collins, 1980, p. 348

[13] Harrison, Paul. *Inside the third world: the anatomy of poverty.* Brighton, Sussex, Harvester Press, 1979. p. 21.

[14] Mamani, Mahmood. "Population, poverty and politics," *Nigah* (3):5-10, July 1975.

[15] Bodenhermer, T.S. "The political economy of malnutrition: generalization from two Central American case studies," *Archivos Latino–Americanos de nutricion* vol. 22, 1972.

Impact of population on income, savings, investment and economic growth

The People's Republic of China is among the countries which have recognized that rapid population growth is not beneficial to the accelerated speed of capital accumulation. It is estimated that to bring up a child until the age of 16 when he or she can join the work-force costs approximately 1,600 Yuan* in communes and production brigades, 4,800 Yuan in country towns and 6,900 Yuan in cities. (These figures include education costs at primary and middle school level). It is calculated that the total costs of bringing up those born since 1949 have absorbed approximately half of the cumulative total of the country's consumption fund.[17]

A monograph published by the Economic and Social Commission for Asia and the Pacific (ESCAP) points out that in Nepal, the existing standards of living are already too low and even the maintenance of the low level will be a difficult task in the face of a rapid increase in population. Any population growth requires some investment of available capital just to maintain the same level of per capita GDP. The higher the rate of population growth, the greater the proportion of available capital that must be used for investment simply to maintain constant per capita GDP and the less there is available to increase per capita GDP.[18]

Todaro says that 'capital accumulation results when some proportion of present incomes is saved and invested in order to augment future outputs and incomes'.[19] It involves saving or the postponement of direct consumption, and using money for investment purposes such as buying a hand-tractor or even fertilizer and insecticide instead of consumer (consumption) goods like food and clothing. Such investment becomes impossible when a family with many dependent children is in the midst of poverty. In such a situation the interrelationships of income, savings, investment and economic growth illustrated in the following diagram are likely to occur.

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* Approximately 1.5 Chinese Yuan = One US dollar.

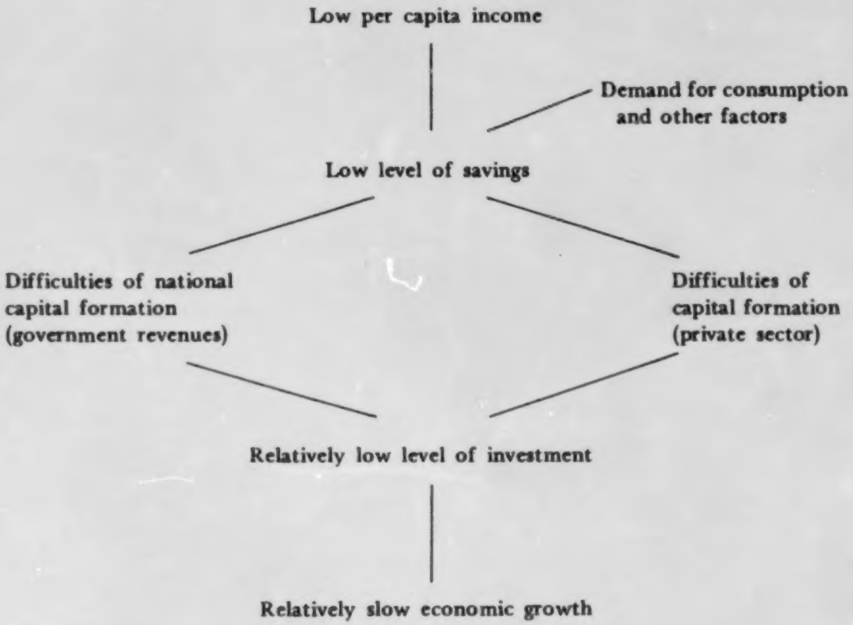
[16] Srimshaw, N.S., et al. *Interaction of nutrition and infection.* Geneva, WHO, 1968.

[17] Liu Zheng and Wu Cangping. "The impact of rapid population growth." In: Liu Zheng, et al. *China's population: problems and prospects.* Beijing, New World Press, 1981, p. 89.

[18] ESCAP. *Population of Nepal.* Bangkok, 1980, p. 147.

[19] Todaro, Michael P. *Economic development in the third world.* London, Longman, 1977, p. 71.

Diagram showing some interrelationships amongst income, savings and investment[20]


Low per capita income
Demand for consumption and other factors
Low level of savings
Difficulties of national capital formation (government revenues)
Difficulties of capital formation (private sector)
Relatively low level of investment
Relatively slow economic growth

Impact of socio-economic development on population growth

In the preceding sections of this paper, the impact of population growth on socio-economic development was explained. This part of the paper will, therefore, be devoted to the impact of socio-economic development on population growth, in general, and fertility rates in particular.

It has been observed that in most countries as the GNP per capita increases the birth rate decreases. This is true with the developed countries of the region, namely: Australia, Japan, New Zealand and Singapore. Largely because of the high GNP per capita the annual rate of population growth is also relatively low as shown in Table 5.

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[20] Unesco. Regional Office for Education in Asia. *Population education in Asia: a source book, Booklet 4.* Bangkok, 1975, p. 122.

Table 5. GNP per capita and population growth

Country	1979 GNP per capita US $	1970–78 Growth rate	
		Population	GNP per capita
Australia	9,100	1.6	1.5
Japan	8,000	1.2	7.8
New Zealand	5,940	1.7	0.9
Singapore	3,820	1.5	6.6

While no causal relationship could be claimed for the above phenomenon, evidence of the influence of economic growth (measured by GNP) and increasing per capita GNP on population dynamics is still apparent from this table.

It appears that there is truth in the saying that wealth begets wealth, and that development is one of the better contraceptives. This does not mean that rising income directly causes a decline in the birth-rate. Rather, the processes and conditions which lead to, and result from an increase in per capita income usually cause a number of social and attitudinal changes which in turn bring about an eventual decrease in the birth rate.[21] As family earning reaches the income threshold level, families can afford to send their children for higher education, which invariably leads to a later age at marriage. Likewise, they are likely to acquire knowledge about family planning, and more importantly to avail themselves of family planning services when they get married.

A study of Father Francis Madigan[22] in the Philippines also showed that economic development resulting from rural electrification influences fertility behaviour. He found evidence not only of association but also of a causal influence between electrification on the one hand, and income, the establishment of business, and employment on the other. In addition, to this he found a similar association between electrification, income, and employment as independent variables, and fertility as a dependent variable. It was shown in the study that rural electrification stimulated industrialists and businessmen to transfer to the community which was provided with electricity. Such business and industrial development lead to

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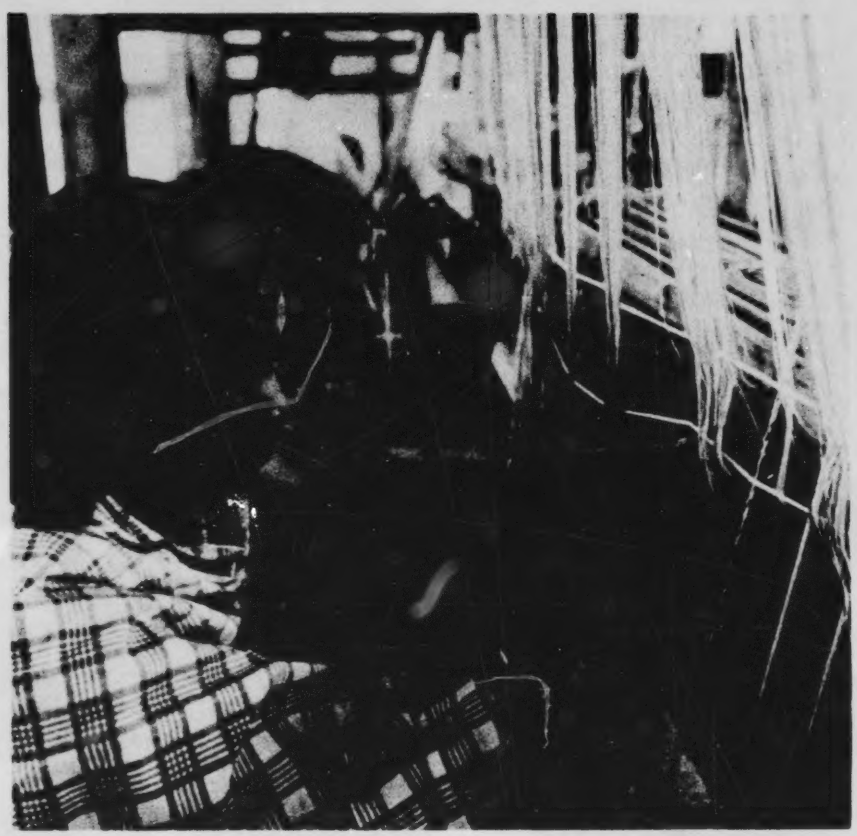
[21] *Ibid.* p. 125.

[22] Madigan, Francis C. *Co-operative rural electrification, income distribution, employment and fertility: a case study from the Southern Philippines.* Paper presented at the International Union for the Scientific Study of Population General Conference, Manila, 9–16 December 1981.



increased opportunities for employment, increased community level income and increased household level of income. On the household level, dwelling unit electrification was regarded as a most strongly experienced and deeply felt psychological want which the people had thought would never be met in their lifetime because of the infrastructural expense, but which in fact had been met. Electrification of their dwelling units required that households obtained loans from a bank, relatives, or other source. These loans were, in very many cases, supplemented by the instalment buying of some simple electrical devices such as a modern electric iron for ironing clothes. Regular monthly electricity bills were another commitment which these (mainly farm) households had to meet from their limited cash resources. Pregnancy and another child at that time was seen as an event which would compete for the scarce resources available to repay credit instalments for electrical goods, and the monthly electricity bills.

Likewise, parents who had to work at home making such things as handicrafts for extra income, found that electricity made it possible to do so at night. Having a baby was seen as an obstacle, so most married couples voluntarily sought the family planning services available in their community, with a resulting drop in the birth rate.

A similar study carried out by Suchart in Thailand showed that certain agricultural practices, such as the use of ground water and the size of land cultivated during different seasons of the year, had a significant impact on fertility. He found that the bigger the size of the land cultivated, the bigger the family size. He also found that the use of modern technology such as fertilizers and pesticides, which is to some extent a measure of modernity, is negatively related with fertility and the demand for children.[23]

Again, in Thailand, a study of fertility threshold values shows that education and income are determining factors for fertility decline. A study by Suchart revealed that a real fertility decline only took place when women had completed at least the upper level of secondary education, that is, after they had about ten years of schooling.

> Insofar as average income is concerned, it has been found that a woman would have significantly fewer children than the total average only when the woman herself earns at least 1,000 baht (US $50) per month* or a household member earns an income between 300 and 500 baht (US $15 and 25) a month or an average of US $249 per year (children and other dependants included in the average).[24] It appears that the enhanced status of women has a tremendous influence on fertility.

It is not only economic development and its consequent modernization of social values that result in fertility declines. It is also possible for there to be a decline in the fertility rate and the annual rate of population growth without accelerated economic development. Sri Lanka is a case in point. The birth rate was down to 29 per thousand by 1981 and the annual rate of population growth had dropped to 1.7 per cent, but the country is still considered economically less developed. The world fertility survey attributes the drop in fertility rate in Sri Lanka to the high level of

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23. Suchart Prasith-rathsint. *Agricultural practices and fertility in a northern Thai village.* Bangkok, National Institute of Development Administration, 1979.

* In 1979 approximately 20 baht = One US dollar.

24. Suchart Prasith-rathsint and Tawatchai Arthornthurasook. *Fertility threshold values of income and education in Thailand.* Bangkok, National Institute of Development Administration, 1979.

education, especially among women; and the consequent higher age for marriage among them. The age at marriage in Sri Lanka is among the highest in the developing world—28 for men and 24 for women.

Perhaps the most dramatic decline in birth rates has been achieved in China, the most populous country in the world, where the crude birth rate had dropped from 45 to 21.7 per thousand by 1979. The annual rate of population growth was reported to be about 1.3 per cent in 1979. China is also classified as among the less developed countries. The success of the population control programme in China is attributed to the firm and effective implementation of the population policy, using social pressure from local leaders and reference groups rather than direct governmental action. At one point, there was a massive campaign for a two-child family. Since 1981, the policy has changed to a one-child family.

Conclusion

Perhaps the statement of Sun Jingzhi, a distinguished Chinese demographer provides a most apt conclusion. He says that 'The population problem is a socio-economic one, and economic conditions are determining factors in regard to changes in population patterns. Population growth and economic development are complementary, interdependent and act as constraints on each other.[25]

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[25] Sun Jingzhi. "Economic development: a major solution to population problem." In: Liu Zheng and Wu Cangping. *China's population: problems and prospects.* Beijing, New World Press, 1981, p. 77.

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

POPULATION CHANGE AND SOCIO-CULTURAL VALUES

The developing countries of the world in general, and those of Asia and the Pacific, in particular, have realized that unplanned population growth is one of the stumbling blocks to socio-economic development. To more and more developing countries, controlling rapid population growth is a shared goal.

As early as 1978, 16 countries in Asia and the Pacific considered a lower rate of national increase in population growth desirable. These countries were Bangladesh, China, Fiji, India, Indonesia, Iran, Nepal, Pakistan, Papua New Guinea, Philippines, Republic of Korea, Samoa, the Socialist Republic of Viet Nam, Sri Lanka, Thailand and Tonga. All these countries perceived that the high rate of population growth was having a negative effect on development efforts.[1]

Most of these 16 countries have adopted an anti-natalist policy, for some as early as the 1960s. One then wonders why population growth has not been substantially slowed down in the countries other than China, the Republic of Korea and Sri Lanka. Todaro appears to have a good explanation for this. He says, 'Population growth has a built-in tendency to continue, a powerful momentum which is like a speeding automobile which, when the brakes are applied, tends to keep going for some time before coming to a stop.'[2]

Todaro offered two reasons for the hidden momentum of population growth, namely: (1) that the high birth rates cannot be altered drastically overnight, due to social, economic and institutional forces which have influenced fertility rates in the course of time; and (2) the young age structure of the population, which means a much larger population base for the country. The latter acquires added significance in the context of Asia and the Pacific since it has the six most populous countries of the world namely Bangladesh, China, India, Indonesia, Japan and Pakistan with an estimated total population of 2,048.2 million in 1979.

This paper focuses on social, economic and institutional forces, which are referred to as socio-cultural values.

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[1] *Population facts at hand.* New York, UNFPA. 1980.

[2] Todaro, Michael P. *Economic development in the third world.* London, Longman, 1977. p. 136

Population change is both a biological and socio-cultural phenomena. The whole process of reproduction leading to the birth of a child is biological. But the decisions behind the birth of a child, and the nature of the upbringing of that child are governed not so much by biological considerations as socio-cultural principles. Culture consists of a 'historically created design for living, explicit and implicit, irrational and rational, which may exist at any given time as a potential guide to behaviour'.[3] Jocano, a prominent Filipino anthropologist describes culture as: '. . . representing the accumulated experience of the people, their common heritage, hence not easy to change.'[4] A people's culture relevant to population change did not emerge overnight–rather it has developed through extended periods of time.

Values, which are principles, standards or qualities that are regarded by social groups as worthwhile and desirable are deeply embedded in a people's culture. Human beings are in fact distinguished from other animals by their culture and social values. To be human is to possess values.

Socio-cultural values, in general, change sluggishly over time; not overnight. The rate at which the socio-cultural values of a country change depends on a number of factors such as the stage of economic development, state of modernization, and whether a country has an open or closed-door policy.

Today, in view of the efficiency and effectiveness of communication and transportation all over the world, there are only a few countries that are isolated, except those segregated for political reasons. Consequently, most countries and societies have been brought closer to each other–learning from each other and slowly modifying many of their socio-cultural values. One such set of values is that relevant to population change and fertility norms. Modified fertility related values, like most other values, are of course not disseminated to and acquired and accepted by all the people simultaneously. Hence the often conflicting views about certain values existing in a given society. *The value of children study: a cross-national study*[5] by Fred Arnold, et al. confirms this. The study shows that there are positive and negative values attributed to children in the Asian countries included in their study. These are as follows:

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[3] Kluckhohn, Clyde., and W.H. Kellay. "The concept of culture." In: Linton, Ralph, ed. *The science of man in the world crisis.* New York, Columbia University Press, 1945. 97 p.

[4] Jocano, F. Landa. *Culture in population change.* Quezon City, Philippines, 1981.

[5] Arnold, Fred et al. *The value of children: a cross-national study, Vol. 1: Introduction and comparative analysis.* Honolulu, East-West Population Institute, 1975. p. 9–10.

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Positive general values

1. *Emotional benefits.* Happiness, love, companionship, fun; also viewed in reverse as relief from strain and avoidance of boredom or loneliness.
2. *Economic benefits and security.* Benefits from children's help in the house, business, or farm, from care of siblings and from sharing of income; old-age security for the parents, including economic support, physical care, and psychological security.
3. *Self-enrichment and development.* Learning from the experience of child rearing; becoming more responsible and mature; incentive and goals in life; being viewed as an adult, a grown woman or man; self-fulfilment; feeling of competence as a parent.
4. *Identification with children.* Pleasure from watching growth and development of children; pride in children's accomplishments; reflection of self in children.
5. *Family cohesiveness and continuity.* Children as a bond between husband and wife; fulfilment of marriage; completeness of family life; continuity of family name and traditions; producing heirs; having future grandchildren.

Negative general values

1. *Emotional costs.* General emotional strain, concern about discipline and moral behaviour of children; worry over health, noise and disorder in household; children as nuisance.
2. *Economic costs.* Expenses of child rearing; educational costs.
3. *Restrictions or opportunity costs.* Lack of flexibility and freedom; restriction on social life, recreation, travel; lack of privacy; restrictions on career or occupational mobility; no time for personal needs and desires.
4. *Physical demands.* Extra housework, caring for children; loss of sleep; general weariness.
5. *Family costs.* Less time with spouse; disagreements over rearing of children; loss of spouse's affection.

Large-family values

1. *Sibling relationships.* Desire for another child to provide companionship for existing children; enriching the lives of children; avoiding an only child.
2. *Sex preferences.* Specific desire for a son or daughter; desire for a certain combination of sexes among children.
3. *Child survival.* Concern that existing children may die; need for more children so enough survive to adulthood.

Small-family values

1. ***Maternal health.*** Concern that too many pregnancies, or pregnancy beyond a certain age, is bad for the mother's health.
2. *Societal costs.* Concern about overpopulation, belief that another child would be a burden to society.

Similarly, there are pros and cons in regard to small versus large family size. These are illustrated below.[6]

Reasons for large families	Reasons for small families
Health Values	
Children often die. Since children often die, it is necessary to have more children to make sure that someone will inherit the family wealth.	*Family health is insured.* The mother's health is preserved. Father need not work so hard to be able to provide more than enough for the family.
Economic Values	
Economic asset and security for old age. Children are economic assets and are social security for old age.	*Higher standard of living.* Living expenses are less when you have a small family. The family can save to buy all comforts in life plus money for recreation.
Family Welfare Values	
Big families are educative and happy. The bigger the family the more chances to learn from one another. Furthermore, big families are happy families.	*Better child rearing and tensionless families.* Children are considered 'jewels', not nuisances, hence reared better. There is no tension brought about by insufficient resources in the family.
Marriage-related Values	
An only child is a spoiled child. Children from smaller families are prone to adjustment problems, hence less likely to easily adjust with their future spouses.	*Happy dispositions.* Children from smaller families are less likely to suffer tension while being brought up, hence are likely to have happy disposition, even during marriage.
Personality-related Values	
Ego support. The more children they have the more husbands are able to demonstrate their virility and manliness.	*Self-actualized.* The less the number of children, the more likely will they realize their ambitions.
Moral Values	
God's will. Large families are God's blessing.	*Morally irresponsible.* A person who has more children than he can decently bring up is morally irresponsible.

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6. Cruz, L. de la. *Population education vis-a-vis family planning.* Paper prepared for the Intensive Training Course for Key Programme Personnel from the Abri (Armed Forces), Department of Agama (Religion), DGI (Council of Churches) and Muhammadiyah (Islamic Schools). 6 p.

Cultural Values

Attribute of status. **'Parents of the year' awardees are those who have many successful children.**	***Social problem.*** **Parents with big families are likely to add to social problems.**

The dimensions of population change and fertility behaviour which are linked to socio-cultural values, such as religious beliefs and economic and cultural values require further elaboration.

TAMA NA SINA
NENE, LITO AT BOY.
FAMILY
PLANNIN
HARAP
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Religious values

Perhaps the most formidable obstacle to the success of anti-natalist population policies is that of religious values. Paul Harrison noted that:

> Islam and Roman Catholicism both appear to be potent forces maintaining fertility at high levels. The areas with the fastest population growth rates in the world lie in the Moslem belt from North Africa, through south-west Asia to Pakistan and Bangladesh, and in Central and South America. In these areas birth rates are usually a good deal higher than one would expect simply from the level of income in the country, and the decline in birth rates has lagged behind the fall in death rates even more pronouncedly than elsewhere in the third world[7].

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7. Harrison, Paul. *Inside the third world: the anatomy of poverty.* Brighton, Harvester Press, 1980. p. 229

Islam. It appears that the Muslim world is divided on the issue of fertility control. The International Islamic Conference held in Rabat (Morocco) in December 1975 discussed the position of Islam with reference to planned parenthood. Sixty-nine Islamic theologians and scholars went thoroughly into this question. The press release issued at the end of the Conference stated:

> . . . the Islamic Law allows the Muslim family to look after itself as regards the procreation of children whether this is in the sense of having many or few of them. It also gives it the right to deal with sterility and to arrange suitably spaced out pregnancies and to have recourse, when needed, to safe and lawful medical means. . . . the use of means which may lead to sterility is not allowed by the law to the married couple or anybody else.

It appears that what is forbidden is sterility leading to childlessness; but that sterilization after evidence of sterility appears to be permitted. The 1971 conference sets a favourable tone in regard to planned parenthood. However, in the 1975 meeting of the World Moslem League, it was declared that birth control had been invented by the enemies of Islam, and the faithful were urged to procreate, avoid abortion and reject the pill.

The conflicting views regarding fertility control in the Moslem world is perhaps aggravated by the fact that there is no central international religious official hierarchy that issues out edicts, just as the Pope of the Roman Catholic church is empowered to do. Consequently, issues such as the religious aspects of family planning are left to religious leaders and/or *ulemas* or scholars of Moslem theology to interpret and issue out as *fatwash* (Islamic consultations). Unfortunately, fatwash on family planning are not consistent, as their interpretations vary according to whether the religious leaders or *ulemas* belong to the conservative or the modern Islam school of thought.

Liberal trend in Islam. Shanawany points out however that when the Prophet Hadith said 14 centuries ago, 'multiply and get married because I will boast of you over other nations in the Day of Resurrection', the Moslem population of the world was only ten million.[8] Now there are 750 million, and there is no need for such population growth as a means to propagate Islam. More and more Moslems are changing attitudes and accepting the need to plan their families.

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[8] Shanawany, Haifaa. "Islamic and Catholic traditional and liberal opinions on birth control," in Bogue, Donald J., ed. *Further sociological contributions to family planning research.* Chicago, Community and Family Study Center, 1970. p. 198-213.

Roman Catholic. In 1968, the then Pope Paul VI issued a papal encyclical commonly known as Humanae Vitae (On Human Life) which *inter alia* states that God created the act of love for a dual purpose: first to create children, and second, to unite the spouses in love. A key passage of the statement reads, 'Every conjugal act must remain open to the transmission of life. All forms of artificial means to prevent procreation is prohibited–one who ignores it is threatened with spiritual peril'. If there are serious motives to space out births, which derive from the physical and psychological conditions of husbands and wives, or from external conditions, the church teaches that it is then licit to take into account the natural rhythms immanent in the generative functions, for the use of marriage in the infecund periods only, and this way to regulate birth without offending the moral principles.

In the Philippines, it is not uncommon to hear people say, 'if you cannot propagate the faith, then one ought to propagate the faithful'. Many people adhere to this even if it means eternal bondage to poverty. The prevalent attitude is acceptance of misery of life on earth, and to hope for reward in the life after death.

It is, of course, true that about 80 per cent of Filipinos are Roman Catholics. However, about 70 per cent of them live in the rural areas, and rarely participate in a Roman Catholic Church service; only perhaps during the annual village religious festivity. During those rare occasion, it is unlikely that the Catholic priest will preach about birth control. If Filipinos still have a high birth rate (estimated at 34 per thousand in 1981, with a rate of population growth at about 2.4 per cent), it must be due to deeper socio-cultural values. This argument is substantiated by a study of Perla Q. Makil in which she showed that out of 2,015 respondents in 100 municipalities in the Philippines surveyed in 1967:

> . . . about 66 per cent disapproved family planning and they did so because it was a sinful practice. However, only 3 per cent of the respondents mentioned the Catholic Church or church teaching as a reason for the disapproval. Of the Catholic respondents alone, about two-thirds were opposed to any form of family planning. Although they gave religious reasons (e.g. 'God's will' and 'sinful') for their stand, it was found that the approvers were closer to the church than the disapprovers. Closeness to the church was measured by the respondent's church attendances, attendance in Catholic schools, or consultation with one's pastor's opinions on various issues.[9]

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[9] Young, Venus Co. "The Church and family planning," *Population Forum* 6(3):14, 1980.

Liberal trend in Catholicism. Despite the presence of a centralized religious hierarchy and a network of churches from the Vatican to the village levels among the Catholics—and a clearer elucidation of the Humanae Vitae—a liberal attitude to population regulation and family planning has emerged, largely because of the declining quality of life of the people resulting from unplanned births. It is true that the Humanae Vitae has not changed but it has less effect on many Roman Catholic couples' decision-making. It should be noted that of the seven countries which stabilized their population growth as early as 1979 three are Roman Catholic countries. These are Austria, Luxemburg and Belgium. The other countries being East Germany, West Germany, Sweden and the United Kingdom.

Economic values

An East-West Center study cited economic benefits and security as a positive general value conducive to having large-sized families. These include 'benefits from children's help in the house, business, or farm, from care of siblings, and from sharing of income; old age security for the parents, including economic support, physical care, and psychological security'.[10]

In farming communities in many countries of the region children are used as labour power as early as age nine if not earlier. They help in planting, weeding and harvesting agricultural crops, especially in those countries where farming methods remain the same as they were years and years ago. In cottage industries, children's labour is invariably harnessed to augment the family income. In many family business operations such as stores, restaurants, market stalls, flower shops—the children are useful and dependable help-mates. There are other equally productive tasks which children perform around the house, such as cooking, cleaning, fetching water, washing clothes, gathering firewood or cow dung for cooking fuel, marketing, running errands and caring for younger siblings or the very old in the family and begging on the streets. The concept of childhood as a time for play and freedom from responsibility is the privilege of the children of the elite only. In many cases, without additional help from their children, poor families perceived they would have difficulties making both ends meet.

Among the Asian countries involved in the East-West Center's *Value of children* study, (such as Japan, Philippines, the Republic of Korea and Thailand), more than 70 per cent of rural respondents expect to rely on their children when they are old. In Asia and the Pacific, there are very few countries which provide for a universal social security system. It is reported that social security gets only about 5 per cent of the gross national product in developing countries. Invariably, this goes only to Government employees and those employed by bigger private business and industrial establishments. Only those in the modern sectors of the economy are covered by pension plans; but not those self-employed. The hopes of the parents during their old age are then pinned on their children. The more children they have the more assured they are of economic support, physical care, and psychological support during their old age.

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[10] Arnold, Fred. et al. *Op. cit.* p. 9

Probing into whether having one, two or three children would be somewhat of a financial burden, the East-West Center study found that:

> . . . only in the Republic of Korea did a majority of parents consider as many as three children a heavy burden financially. Perceived economic pressures are relatively high in Thailand, but even there only 40 per cent of parents regardless of socio-economic group, said that three (or four) children would cause a heavy financial burden for the family. Filipinos generally showed the lowest perceived costs of children. Filipinos are found to have perceived children as most beneficial economically, especially in the rural areas.

There is, however, a tendency for parents to take stock of the child's contribution to the family income; but not the cost in terms of food, clothing, education, and the opportunity cost to parents (for example, preventing mother from working outside the home) especially during a child's infancy. This is partly due to the optimistic predisposition of many parents—they tend to count their blessings, but not their misfortunes. And in fact, to many of them, children are God's blessings. When a child is born they look at the two *hands* that may produce and not the one *mouth* that will consume.

Cultural values (Beliefs)

People in some countries of the region have a number of pronatalist values and beliefs. Some of these are discussed briefly below:

Preference for sons. The preference for a son appears to be prevalent in the region. Castro and Barcelona say that; 'Married life in China, unless attended with male children is seldom happy. The wife is exceedingly anxious to present her husband with sons, who will perpetuate his name and burn incense before his tablet after his death.[11]

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[11] Castro, Caridad R.H., and Delia R. Barcelona. "Superstitious beliefs and practices in some Asian countries: implication for family planning communication," In: University of the Philippines, Institute of Mass Communication; *Family planning communication in Asia: an anthology.* Quezon City, University of the Philippines Press, 1976. p. 123-134.

'No sons, begets many children', runs another Chinese proverb. The family that has no luck at first has to keep on trying for male children.[12]

Even now, by and large, this belief is still held in China. Consequently in 1980, a 90 minute film, *Sweet Life,* a romantic story which focused on preference for a son was developed. The film is widely shown throughout China in an attempt to re-orient this traditional value. The main message of the film is that sons and daughters have an equal responsibility to look after their parents during their old age. It has been the practice in China and for that matter many countries in Asia and the Pacific that it is the son's duty to look after his parents. Daughters upon marriage leave their parents and are not duty bound to look after them. It is no wonder then that parents keep on trying to have a son even if they already have half a dozen daughters, as was portrayed in this film from China.

In India, husband-wife behaviour patterns are the result of extended family life. That is, husbands and wives are expected to remain emotionally apart from each other, resulting in poor communication. In order to demonstrate her value to the extended family, a woman must bear and raise a large number of children in consonance with expectations. In order to achieve status and power, she must have at least one son but preferably several. As they say, 'having no son is equal to having no children'.[13]

Paul Harrison, in his book *Inside the third world: the anatomy of poverty* says:

> In Hindu religion only a son can perform the funeral rites for the father's soul: an orthodox man must beget a son, or risk rebirth in a lowly form like a snake or a pig. In almost all cultures sons carry on the family name and fame and inherit the estate. In Asia, sons attract dowries. Anyone who has only daughters is quite likely to face financial ruin, anyone with nothing but sons can make a considerable profit from that fact alone. Men earn more than women—so sons brings in more cash before they are married and can provide better for their parents in old age. No wonder Indians brides are greeted with the traditional wish: 'May you be the mother of eight sons.[14]

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12. Harrison, Paul. *Op. cit.* p. 224

13. Castro. *Op. cit.* p. 123-134

14. Harrison, Paul. *Op. cit.* p. 223-224

This belief about the value of sons appears to have a long history in India. An anonymous Indian poet wrote in 600 B.C. the following poem:

On the importance of having a son

In him a father pays a debt
And reaches immortality,
When he beholds the counternance
Of a son born to him alive.

Then all the joy which living things
In waters feel, in earth and fire,
The happiness that in his son
A father feels it greater far.

At all times fathers by a son
Much darkness, too, have passed beyond,
In him the father's self is born,
He wafts him to the other shore.

Food is man's life and clothes afford protection
Gold gives him beauty, marriages bring cattle,
His wife's friend, his daughter causes pity
A son is like a light in highest heaven.[15]

Nancy Williamson concludes that in India:

> . . . sons are more productive, provide in old age, bring in dowries (and wives who work for the family), and have a better chance of success than daughters. Similarly, the social conditions also apply. The Indian family system is patrilocal and patrilineal, sons are needed for continuity of the family, sons provide protection and perform religious rites for parents, and rural parents need them for labour.[16]

The East-West Center study on *Value of children* found that a third of rural families in the Philippines, two-fifths in the Republic of Korea and nearly a half in Thailand simply try, no matter how many daughters they have, until they have at least one son. Those who eventually give up, do so only after they have had three or four daughters in a row.[17] The boy preference appears to be fading, though, in the Philippines. This is largely due to the emancipation of women, especially in urban areas.

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15. Williamson, Nancy E. *Sons or daughters: a cross cultural survey of parental preferences.* London, Sage Publications, 1976. p. 78–79.

16. _______. *Op. cit.* p. 79

17. Fred Arnold. *Op. cit.* Vol. 1

Until recently, preference for a son was quite strong in the Republic of Korea. The Planned Parenthood Federation of the Republic of Korea has developed a film which is now being used widely to re-orient the people's belief in this regard. The Central Office for Population Education has also developed a cassette tape on the issue of boy preference entitled, *New thought, new behaviour,* which is intended to dissuade couples from clinging to this traditional value which is obviously affecting fertility behaviour.

Williamson points out that in the Republic of Korea, son preference affects fertility behaviour. She cited many studies to show that sex composition of children affects contraceptive usage. Boy-skewed families are more likely to use birth control early and to want no more children.[18]

Marriage-related beliefs. In the Philippines grains of rice are showered on the young couple as they walk down the aisle to the door of the church or as they go to the house after the wedding ceremony, to ensure prosperity and fertility. Children are God's blessing. A barren wife is looked down on.

In many rural areas of the Philippines, to have only one child is to be prejudged unfavourably by the community. To the community, the father is sterile, weak or simply stingy. This is linked to the belief that having many children is a proof of male virility. The community members will invariably utter, 'What a pity for the child, he (or she) has no playmates. How cruel can the parents be to that poor, lone child'.

Ho Wing Meng says that, 'In many parts of Asia even today, barren and childless couples are despised and pitied by their friends, their families and society at large. A wife does not really become a member of the family until she produces a child'.[19]

Beliefs about women. In some societies, a woman's place is in the home and her main role is to beget children. But what happens if the husband dies or if she is divorced by her husband? Harrison points out that in Bangladesh a woman's 'only hope of security lies in having as many sons as possible. Sons will work the land for her, and defend her against depredations. Not surprisingly, surveys in Bangladesh have shown that women's ideal family size is significantly higher than that of men'.[20]

Socio-cultural restrictions of women working not only slow development, but also encourage fertility—a twin bladed knife thrusting deep into the poverty of families and nations.

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[18] Williamson. *Op. cit.* 95 p.

[19] Ho Wing Meng. "Asian values and modernization". In: Seah Chee-Meow, ed. *Asian values and modernization.* Singapore, Singapore Press, 1977. p. 14.

[20] Harrison. *Op. cit.* p. 233

Because daughters do not work in many societies they are regarded as liabilities and the sooner they are married off the better economically for the family, despite the dowry that has to be paid by the bride's parents. In such countries, early marriage becomes the rule rather than the exception. Age at marriage is inversely related to cumulative fertility. A study in Pakistan shows that 29 per cent lower cumulative fertility was reported by women who married at age 19 or later, compared with those married at age 16 or earlier. This is in spite of the fact that those who married later tended to reproduce faster.[21]

Values clarification

Fertility-related values are learned by people from their own social environments, and are centrally lodged within their own total belief system. However, changing economic and social realities have resulted in value changes, value crises, value-conflicts and confusion. These have arisen largely because there are positive and negative values in children. There are pros and cons to having small or big families. Neither side of the argument is entirely right or wrong. Value problems arise precisely because people have to choose between two good values. The existence of value problems related to fertility behaviour cannot be denied.

The experience in some countries in Asia has shown that value conflicts involving fertility-related values cannot be solved by indoctrination and coercion. An Asian adage says, 'you can take a horse to the water but you cannot make him drink', and it has proven to be so in family planning in Asia and the Pacific.

The following table summarizes the findings of family planning awareness, approval and practice for the period 1967-1979 in the Philippines.[22]

Year of study	Awareness %	Approval %	Practice %	(Respondents)	(Municipalities)
1967	47	64	no data	2,015	100
1970	67	65	18	1,043	20
1971	83	70	24	753	20
1972	93	78	37	1,062	28
1979	77	86	20	446	2 barrios

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21. Karim, Mehtab S. *Socio-economic and cultural aspects of marriage and fertility in urban Pakistan.* Honolulu, East-West Population Institute, 1979. 28 p. (EWPI paper no. 64)

22. *Population Forum.* Issue on: "The Church and family planning," Vol. 6, no. 3, 1980. 28 p.

There is an insignificant increase in practice from 18 to 20 per cent between 1967 to 1979. One wonders if this is due to the fact that the emphasis has been on information campaigns and clinical services rather than on education about family planning. Education, however, may be didactic hence less effective. James Banks cited two reasons why this is so. He says that didactic inculcation of values denies learners a free choice and does not help to develop a method for deriving and clarifying their own values. Likewise, didactic strategies are unsound because there is no general agreement among adults about what values should be inculcated.[23]

Louis Raths pointed out that the didactic approach in value education is invalid as one cannot expect standards to guide a person's life unless those standards have been freely chosen from alternatives, and after thoughtful consideration of the consequences of each alternatives.[24]

In dealing with value crises and value conflicts such as those relevant to fertility-related socio-cultural values, values clarification has a lot of potential in terms of a couple's decision-making. Values clarification involves at least seven steps, namely the following:

1. **Choose freely.** By and large, the birth of a child is the product of a series of choices. To begin with a husband and wife choose each other (in some societies the choice is made by the parents). They could also choose to have or not to have a child, or a number of children, though their choice may be influenced by many socio-cultural factors. Fortunately, to have or not to have a child; or to have a big or small family is no longer beyond man's control. Death may be beyond his power to prevent but certainly not birth or even conception.

2. **Choosing from alternatives.** Studies are consistently showing that the very poor and less educated tend to have more children. Poverty is the cause not the effect of high fertility rates. Poverty has, in fact, dragged them into a blind alley and they are, therefore, deeply enmeshed in pro-natalist traditional beliefs and values, which are largely premised on wrong ideas. They have been kept so long in the dark dungeon of ignorance that flashes of the light of scientific knowledge blinds them further—hence they are left with no alternatives to choose from but to retreat to their traditional values and beliefs. Breaking through the impregnable walls of such traditional values and beliefs is a formidable task, but it must be penetrated soon, for as former World Bank president, Robert McNamara

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[23] Banks, James A. *Teaching strategies for social studies: inquiry, valuing and decision-making.* Reading, Massachusetts, Addison-Wesley, 1974. p. 449

[24] Raths, Louis. et. al. *Values and teaching: working with values in the classroom.* 2 n. edition. Columbus, Charles E. Merril, 1966. 353 p.

says, 'every decade of delay in reaching replacement level fertility (two-children per couple or one daughter per mother) means an extra billion or two to the stable world population total, which is expected sometime in the 21st century'.

3. **Choosing after thoughtful consideration of consequences.** The poor want more children as one strategy for survival, but this is a strategy that also prevents them from rising and crossing the poverty line. Those amidst poverty are worried about their subsistence and survival now; not that of their own children in the future, nor the survival of mankind itself. Thoughtful consideration of the disastrous consequences of their pronatalist behaviour is a luxury they cannot afford to indulge in. A hungry man does not think right. It is for this reason that population educators and family planning workers find it a good strategy to work in the context of development programmes. It is only when the 'development pills' start to have effect on the very poor that they become capable of thoughtful consideration for the consequences of their current fertility behaviour.

4. **Prizing and cherishing.** Values include rational choices and feelings. When feelings are added to one's rationalization of certain fertility-related values, then one becomes aware of what he or she prizes and cherishes. It becomes a part of what one thinks is worthwhile and important. Perhaps the hardest to tackle in terms of changing pro-natalist fertility behaviour are those men and women who have very strong feelings for their current attitudes. But studies on cognitive dissonance also show that once convinced about the message of the new value, they can be the most ardent advocates and promoters of it.

5. **Publicly affirming.** When a couple starts sharing or discussing their fertility-related decisions with others, they not only help clarify their own fertility-related values further, but they also help others to clarify their values as well. It is, therefore, a good omen when people in a community start sharing or discussing their thoughts about fertility-related values. It means that they are opening up, and are quite ready to re-orient, modify or change their traditional beliefs and values.

6. **Acting.** Studies have shown that there is always a gap between knowledge, attitude and practice in family planning. This is to be expected, as socio-cultural values, especially fertility-related values, do not change overnight despite legislations, incentives and dis-incentives, information and education. China has shown that the best strategy to ensure continuing action on having two-child-per-couple (and now one-child-per-couple) families is through peer group and social pressures. In many other countries, the smaller family norm is beginning to be formed in the minds of

the young and adults through education, especially population education. The small family norm is getting to be the basis of social pressures in many countries of the region.

7. **Acting with some pattern.** Fertility-related values are not and should not be independently reflected and derived. They must be part of the overall development goals of families, communities and nations. Fertility-related values must be seen as a part of the overall pattern of life of the people. This is the ultimate step in values clarification.

Conclusion

More and more nations in Asia and the Pacific have declared an open war to arrest rapid population growth (RPG). The battle might be lost unless all concerned successfully break into the strongest fortress of RPG, the pro-natalist socio-cultural values. Population education, appears to be one of the best weapons for that purpose. If and when the fertility-related values of people are changed, this will be significant not only for the continuing progress of mankind but also perhaps for its salvation.

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SECTION FOUR

BIBLIOGRAPHICAL SUPPLEMENT

UNICEF photo

Bulletin of the Unesco Regional Office
for Education in Asia and the Pacific
Number 23, June 1982

BIBLIOGRAPHY
ON
POPULATION EDUCATION IN ASIA AND THE PACIFIC

The documents selected for the list in this *Bulletin* are from the holdings in the Population Education Clearing House of the Unesco Regional Office for Education in Asia and the Pacific. The materials are mainly those developed and published between 1974-1981 in Asia and the Pacific.

The bibliography has been divided into three major parts as follows:

Part One : In-school population education
Part Two : Out-of-school population education
Part Three : Population: quality of life themes.

Each entry provides complete bibliographical information together with addresses of sources in order to facilitate acquisition of the materials, if desired. The language of the document, if not specifically indicated, is English.

Many population education materials have been developed in the Asia and Pacific region but this bibliography contains only those publications considered as primary reference materials. Publications appearing in Part Three show the interrelationships between population and the various quality of life themes.

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Part Two : OUT-OF-SCHOOL POPULATION EDUCATION

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ABOUT THE BULLETIN

The Bulletin was established in 1966, then published twice annually from 1967 to 1972. It is now an annual publication. A special issue was published in January 1982. Each issue contains a bibliographical supplement. Copies of Numbers 21 and 22 of the Bulletin, and the Special Issue, are still available. All previous issues are out of print but may be consulted in libraries.

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